TECHNICAL MANUAL

MAINTENANCE INSTRUCTIONS

DEPOT

SUPPORT EQUIPMENT AND NUMERICAL TOOL LIST

AIRCRAFT ENGINE
USAF MODEL
F100-PW-229

PRATT & WHITNEY
LARGE MILITARY ENGINES
UNITED TECHNOLOGIES CORPORATION
F33657-84-C-2014
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THIS PUBLICATION IS ONE OF A SET OF TWELVE MANUALS. THE COMPLETE SET CONSISTING OF T.O. 2J-F100-53-1 THROUGH T.O. 2J-F100-53-11 AND T.O. 2J-F100-11-2 IS REQUIRED FOR DEPOT MAINTENANCE.

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TOTAL NUMBER OF PAGES IN THIS MANUAL IS 386

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C Blank	6	S-5 Added	13
a	27	S-6 Blank Added	0
b Blank	0		

NUMERICAL INDEX OF EFFECTIVE WORK PACKAGES

NOTE

Only those work packages assigned to this manual are listed in this index.

Insert Change No. 30 work packages and subordinate work packages, dated 15 August 1999. Dispose of superseded work packages and subordinate work packages. If changed pages are issued to a work package or subordinate work package, insert the changed pages in the applicable work package or subordinate work package.
The portion of the text affected in a changed or revised WP is indicated by change bars in the outer margin of each column of text. Changes to illustrations are indicated by pointing hands or change bars, as applicable. Changes to wiring diagrams are indicated by shaded areas.

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017 00	0
018 00	0
019 00	0
020 00	0
021 00	0
022 00	0
023 00	0
024 00	0
025 00	0
026 00	0
027 00	0
028 00	0
029 00	0
030 00	0
031 00	0
031 01 New	14
032 00	0
033 00	0
034 00	0
035 00	0
036 00	0
037 00	28
038 00	28
039 00	28
040 00 New	6
041 00 New	12
042 00 New	12
043 00 New	28
044 00 Through 049 00	Open
050 00	28
051 00	30
052 00 New	28
053 00 and up	Open

* Zero in this column indicates an original WP/SWP

APPLICABLE TIME COMPLIANCE TECHNICAL ORDERS

This is a list of TCTOs applicable to this manual. TCTOs will also be listed in the work packages to which they apply.

T.O. No.	Date	Level	Title (ECP No.)
2J-F100-885	31 Oct 85	I	Modification of PWA 57649 Adapter Set and Reidentification to PWA 57806, F100-PW-100/-200/-220/-220E/-229 Engines, F-15/F-16 Aircraft (ECP 93QC203)
2J-F100-886	31 Oct 85	I	Modification of PWA 57650 Adapter Set and Reidentification to PWA 57807, F100-PW-100/-200/-220/-220E/-229 Engines, F-15/F-16 Aircraft (ECP 93NC328)
2J-F100-890	15 Jul 95	O/I	Modification of PWA 57447 Puller, F100-PW-100/-200/-220/-220E/-229 Engines, F-15/F-16 Aircraft (ECP 94QC003)
2J-F100229-541	28 Sep 98	O/I	Modification of PWA 55760 Fixture For Improved Part Retention, F100-PW-229 Engines, F-15/F-16 Aircraft (ECP 92QC109)
2J-F100229-546	30 Sep 95	O/I	Modification of Retainer Ball Lock Pin Handle PWA 57614, F100-PW-229 Engine, F-15/F-16 Aircraft (ECP 93QC038)
2J-F100229-553	15 Feb 95	O/I	Modification of PWA 57653 Tool Set, F100-PW-229 Engine, F-15/F-16 Aircraft (ECP 94QC004-1)
2J-F100229-554	15 Feb 95	O/I	Modification of PWA 57704 Adapter, F100-PW-229 Engine, F-15/F-16 Aircraft (ECP 89QA624-1)
2J-F100229-560	30 Apr 95	O/I	Reoperation of PWA 57742, No.4 Bearing Front Seal Assembly Leak Check Fixture, F100-PW-229 Engine, F-15/F-16 Aircraft (ECP 93QC001AR1)
2J-F100229-585	30 Sep 98	O/I	Modify PWA 57765 HPT Assembly/ Disassembly Stand By Reoperating PWA 57504-1 Crimper, F100-PW-229 Engines, F-15/F-16 Aircraft (ECP 96QC127)
2J-F100229-587	15 Oct 98	O/I	Reoperation of PWA 57753 Hydraulic Pusher, F100-PW-229 Engines, F-15/F-16 Aircraft (ECP 94QC005)
2J-F100229(VI)-506	15 Mar 95	O/I	Reoperation of PWA 57503 Assembly/ Disassembly Stand for F100-PW-229 High Pressure Turbine (ECP 90QA009-1)

SAFETY SUMMARY

INTRODUCTION

This technical order (T.O.) describes physical and chemical processes which may require the use of chemicals, solvents, paints, or other commercially available hazardous material. This T.O. also describes maintenance actions which may require handling or use of potentially dangerous parts or equipment.

Personnel performing maintenance procedures and practices included in this T.O. shall be familiar with safety precautions and procedures associated with chemicals and other hazardous materials, parts and equipment. The user of this T.O. shall consult their local safety and health staff and Material Safety Data Sheet (MSDS) concerning any questions on hazardous chemicals, personal protective equipment requirements, and appropriate handling and emergency procedures. The user shall become completely familiar with the manufacturer/supplier information and adhere to the procedures, recommendations, warnings, and cautions of the manufacturer/supplier for the safe use, handling, storage, and disposal of these materials. Disregarding safety precautions and procedures or performing unauthorized maintenance can cause engine or equipment damage, serious injury, illness, or death.

WARNING, CAUTION, and NOTE STATEMENTS

WARNING

Highlights an essential operating or maintenance procedure, practice, condition, or statement which, if not strictly observed, could result in personal injury, loss of human life, or an acute/chronic health hazard.

CAUTION

Highlights an essential operating or maintenance procedure, practice, condition, or statement which, if not strictly observed, could result in equipment damage or destruction.

WARNINGS (for personnel protection) or CAUTIONS (for equipment protection) precede selected procedures in this T.O. for additional emphasis. WARNINGS and CAUTIONS are used where emphasis beyond the general safety precautions and instructions are required because the equipment, procedures, or work environment represents an unusual situation (nonroutine use or application) to the technician. The WARNING or CAUTION applies each time the related step is repeated.

NOTES

A note describes an unusual procedure or condition which special attention must be paid for a particular reason.

Notes are not part of safety. A note does not replace a warning or caution.

SAFETY SUMMARY (continued)

BACKUP WRENCH

When torquing or breaking torque on any tube coupling nut, use a suitable wrench to apply torque to the fitting to which the part is attached. Failure to properly use a backup wrench can result in failure of tubes and accessories due to stress loading during torquing procedures.

BEARING HANDLING

The most common cause of bearing damage is attributed to improper preservation and mishandling. Do not handle bearings with bare hands. Wear approved gloves when handling bearings. Coat bearings with engine oil and store in labeled containers as matched sets. Ensure all bearing components have matching serial numbers before installation to prevent bearing failure due to mismatched contact surfaces.

BRAZING, SOLDERING AND WELDING

Brazing, soldering and welding operations may produce fumes that can be harmful to breathe. Arc welding emits ultraviolet light, which can burn the skin and eyes. Provide adequate ventilation. Wear protective clothing/equipment. Ensure gas bottles are properly secured.

CABLES, ELECTRICAL

Small radius bends or severe flexing of electrical cables can result in damage to conductors and/or outer braid.

CARBON SEALS AND SEAL SEATS

Carbon seals and carbon seal seats are easily damaged and shall be handled with care. Do not allow carbon seals to come in contact with petroleum based solvents. These solvents will reduce the lubricity of the carbons and result in rapid seal wear. Do not handle carbon seals or seal seats with bare hands. Wear approved, lint free gloves.

CHEMICAL COMPOUNDS AND SOLUTIONS

Many of the chemical compounds and solutions used in cleaning, inspection, and repair may cause irritation to the skin, eyes, and respiratory system. Many of the chemicals, including their vapors, may be poisonous, easily ignited, corrosive, and react violently with incompatible materials. Improper mixing and combining of these chemicals may produce violent reactions, rapid heat generation, and explosive/toxic gases. Heating certain chemicals may cause toxic gases to be produced. Observe manufacturer’s warning labels and Material Safety Data Sheet (MSDS) instructions for proper handling, storage, and disposal. Consult the local Safety Office for additional information.

COMPRESSED AIR

Compressed air can generate flying debris and can cause severe injury if air blast penetrates the skin or eyes. Reduce compressed air pressure for cleaning or drying to less than 30 psig. Use with effective chip guarding and personal protective equipment. Do not direct air blast toward other personnel.

SAFETY SUMMARY (continued)

COMPRESSED GASES

Many compressed gases are highly flammable/explosive and can cause suffocation at varied levels of concentration or exposure time. Some of the gases can freeze body tissue. Keep ignition sources away. Provide adequate ventilation. Wear protective clothing/equipment.Store in properly marked/labeled containers at approved locations. Do not use in confined areas which may create an explosive atmosphere. Refer to specific Material Safety Data Sheet (MSDS) for additional information.

DANGEROUS PRESSURE

Pressure system precautions apply to all equipment using gases and fluids at all ranges of pressure. To avoid injury, stand clear of tooling and parts being pressure tested when pressure is being applied. Proper tool installation, shielding and hose connections shall be ensured before applying pressure. Ensure all system components shall be compatible with pressures applied and pressure medium used. Pressure shall be applied slowly.

ELECTROSTATIC DISCHARGE (ESD)

Circuit card assemblies and their related components may be damaged by undetectable electrostatic discharge. Care shall be used during handling or repair of these items. Use electrostatic discharge precautionary standard operating procedures.

ENGINE AND ACCESSORIES - TEMPERATURE

Aircraft engines and accessories are extremely hot following operation. Allow sufficient time to cool or wear protective clothing/equipment when maintenance or inspection tasks are required following engine operation. Failure to comply may result in injury to personnel.

ENGINE AND CONTROLS PRESERVATION

Engines and engine controls shall be drained of all fuel and preserved before shipping. Failure to drain fuel can result in a fire hazard. Engine preservation replaces any fuel with oil, which acts as a corrosion preventing agent.

FOREIGN OBJECT DAMAGE (FOD)

Foreign objects can enter engine compartments and accessories during maintenance. Always be aware of the potential for foreign object damage (FOD) entering any uncovered opening of an engine or accessory. Always thoroughly clean parts and compartments to remove all foreign material. Make a final detail inspection of the work area when the job is finished. Follow standard operating procedures for tool and equipment accountability.

FOOD AND TOBACCO

Wash hands and face thoroughly prior to smoking tobacco products or eating food. Residue of the materials used in engine and equipment maintenance can cause serious health problems if ingested or inhaled in the smoke.

HEARING PROTECTION

The frequency and intensity of noise generated during some operations may cause an acute or chronic hearing impairment. Wear approved hearing protection equipment. Contact the local safety office or bioenvironmental engineering for further guidance.

SAFETY SUMMARY (continued)

HYDRAULIC TOOLING

Application of hydraulic pressure to tooling or engine parts can cause them to jump with enough force to cause personal injury. Excessive pressure applied to tooling by a hydraulic pump can cause a structural failure to the engine part and/or the tooling which could result in personal injury. Using a ram with a nonapproved part number or exceeding hydraulic pump pressure can result in excessive pressure being applied to tooling. Do not exceed ram capacity for a given tool. Stand clear of tooling and engine parts during hydraulic tool operations.

JEWELRY

Remove rings, watches, necklaces, and other metallic objects that may be snagged or cause shock or burn hazards.

LEAD SEALS

Lead seals shall only be removed when specifically called for in the procedures. Lead seals identify areas of critical adjustment that can only be attained at the Depot or Vendor level.

LIFTING, ROTATING, AND SUPPORTING

Personnel shall stay clear of objects being lifted during hoist operations or when objects are supported by temporary transition supports. To prevent personal injury, use adequate number of personnel and appropriately rated lifting/handling devices to lift or move objects. Unless specified in the procedures, personnel shall not work on objects suspended by a hoist or supported by temporary transition supports. Personnel shall be prepared for potential unbalanced conditions during hoist operations.

LIVE ELECTRICAL CIRCUITS

Do not work on electrical systems, replace components, or make adjustments to equipment with the electrical supply turned on. Under certain conditions, danger may exist even when the power control is in the "off" position due to charges retained by capacitors. To avoid injuries, always remove power from, discharge, and ground a circuit prior to servicing. Adhere to all lock-out/tag-out requirements.

MAINTENANCE STANDS AND FIXTURES

Ensure modules or assemblies are firmly secured to work stands or fixtures before performing maintenance procedures. Personal injury or damage to modules or assemblies may occur if a work stand or fixture slips.

METAL MACHINING PROCESSES

Metal machining processes may generate dust, fumes, filings, and/or shavings which may cause acute/chronic irritation to the skin, eyes, digestive tract, and respiratory system. Metallic dust vapors may form a fire hazard when exposed to heat, flame, or when in contact with oxidizing agents. Prior to performing any metal machining process, personnel shall consult their local safety and health staff and the Material Safety Data Sheet (MSDS) to become familiar with the hazards and protective measures for a specific metal.

SAFETY SUMMARY (continued)

MOVING ENGINE

Do not move an engine on work stand rails or transportation trailer without having installed proper supports, tie-rods, and flange adapters. Engine may shift or fall off rails and cause injury to personnel. When moving engine, do not push on engine. Use the engine support mount assemblies as a push point.

PACKING LUBRICATION (OIL AND FUEL SYSTEMS)

Use only the lubricant specified in the technical order to lubricate fuel and oil system packings. Use of an incompatible lubricant can cause oil foaming, clogging of critical fuel system filters, and packing deterioration leading to leakage, possible fire and engine shutdown.

PROTECTIVE CLOSURES AND COVERS

Install protective closures on all plumbing and components immediately upon removal. Install protective covers on engine modules, assemblies, parts, and compartments when not being worked.

QUICK RELEASE PINS

Do not force quick release pins into place as this may damage the self-locking feature of the pins. The compatibility of quick release pins is determined by the part number. Intermixing of pin part numbers during installation can result in loss of or failure of the quick release pins.

SHARP EDGED BLADES

Many blades have sharp edges. Wear protective gloves when handling bladed rotors and when installing or removing blades from rotors. Blades should only be used in their designed holder or rotor.

SUPER-CHILLED/HEATED PARTS AND EQUIPMENT

Super-chilled or heated parts and the equipment or agents used to heat or chill can cause burns, frostbite, or both. Wear temperature resistant gloves and other related protective clothing/equipment when handling chilled or heated parts or equipment. Super-chilled parts are fragile due to a lower resistance to impact. Heating parts beyond specified temperature limits can degrade heat treat qualities and result in part failure.

TEMPERATURE NORMALIZING

Allow heated or chilled parts to reach room temperature before applying final torque to fasteners. Failure to comply may result in improperly seated parts and/or mistorqued fasteners.

WORK BOLTS AND WORK NUTS

Work bolts and work nuts shall be permanently marked to distinguish them from engine bolts and nuts. Do not apply lubricants to work bolts and work nuts that will be replaced by engine bolts and nuts which require a thread sealant. Sealants will not adhere to threads contaminated with lubricants.

WORK PACKAGE

ALPHABETICAL INDEX

SUPPORT EQUIPMENT AND NUMERICAL TOOL LIST

EFFECTIVITY: ENGINE MODEL F100-PW-229

LIST OF EFFECTIVE WP PAGES

Total Number of Pages in this WP is 4

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ALPHABETICAL INDEX

ALPHABETICAL INDEX (continued)

ALPHABETICAL INDEX (continued)

WORK PACKAGE

INTRODUCTION

SUPPORT EQUIPMENT AND NUMERICAL TOOL LIST

EFFECTIVITY: ENGINE MODEL F100-PW-229

LIST OF EFFECTIVE WP PAGES

Total Number of Pages in this WP is 16

PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.
1	28	3	28	4 - 15	0
2	0			16 Blank	0

REFERENCE MATERIAL REQUIRED

Title	Number
Standard Maintenance Procedures	T.O. 2-1-111
Illustrated Parts Breakdown	T.O. 2J-F100-94
Hydraulic Torque Wrenches	T.O. 32B14-5-2-1
Aircraft and Engine Slings	T.O. 35D6-1-106
General Installation of Helicoil Inserts	T.O. 44H1-1-117
General Use of Rosan Fasteners, Fluid Fittings andCrissair Check Valves	T.O. 44H1-1-13

APPLICABLE TIME COMPLIANCE TECHNICAL ORDERS

None

CONSUMABLE MATERIALS

None

EXPENDABLE ITEMS

None

APPLICABLE SUPPORT EQUIPMENT

None

ILLUSTRATED SUPPORT EQUIPMENT

None

1. INTRODUCTION.

a. This technical order provides information on F100-PW-229 special tooling used for Depot Level Maintenance. Some information is general, pertaining to all tools. The majority of work packages, however, apply to specific tools. These provide instructions for inspection, servicing, repair, and detail parts replacement.

b. Two lists are included. One identifies tools which are covered by separate publications. The other is a numerical listing of tools used to identify where the tool is used in the manual set.

2. CHANGE REQUEST.

a. Recommendations for specific changes to this technical order shall be submitted on an AFTO Form 22 to SA-ALC/LPCQ (TOMA), Kelly AFB, TX 78241-6421 in accordance with T.O. 00-5-1.

2A. CONTENTS, ARRANGEMENT, AND NUMBERING OF WORK PACKAGES.

a. This technical order contains a master numerical list of support equipment, tools covered by separate publications, and tool maintenance procedures.

b. The following work packages outline this manual.

WP No.	Title
001 00	Alphabetical Index
002 00	Introduction
003 00	Master Numerical List of Support Equipment
004 00	Tools Covered by Separate Publications
005 00 through 049 00	Tool Maintenance
050 00	Locally Manufactured Support Equipment
051 00	Lift and Support Tool Maintenance
052 00	Slings and Hooks Maintenance

3. TYPICAL PART NUMBER.

a. When the word typical precedes a part number, the part number is one of several that may be used in this location. By referring to this typical part number in the Illustrated Parts Breakdown (IPB) manual (T.O. 2J-F100-94) all part numbers applicable to this location can be found. When a part number is used without the word typical, the procedure applies only to that part number.

4. GENERAL.

a. AGE listed herein, is of P&WA design, procured to enhance the maintenance procedures described in this technical manual. This does not prohibit use of locally manufactured tooling, if approved by local cognizant engineering authority, and if safety of operations and quality of the product is not impaired. Use of locally designed and manufactured tools, or standard commercially procured tools or gages, will not necessarily be listed in tool groups or described in the text of this manual.

b. Depot Process Support Equipment (DPSE) repair tools are also contained in this manual and within the manual set. They are designed to facilitate repair of engine parts, thereby eliminating the need for cumbersome clamps, blocks, or equivalent locally manufactured devices. For identification, the DPSE tool numbers are prefixed with the letters SAALC.

c. The maintenance procedures in this manual do not prohibit use of alternate or improved methods and practices which improve or maintain product integrity and operator safety. Prior approval shall be obtained from the cognizant engineering authority.

d. Use plastic, rubber, or rawhide hammerheads, never metal, when driving on any part of engine. Debris from plastic, rubber, or rawhide hammerheads shall be removed from hardware immediately. Use CAUTION when lifting parts by hand, and stay within locally acceptable weight limits. Use chain or powered hoist and special lifting yokes. Pressure or tension shall be evenly applied to all bearing pushers or pullers. Jackscrews and attaching screws, bolts, and nuts shall be tightened in small increments on opposite planes.

e. Aluminum tooling not covered by separate publications may have threaded holes repaired with Rosan or Helicoil inserts. Refer to T.O. 44H1-1-13 or T.O. 44H1-1-117.

f. Pneumatic wrenches (Black and Decker, FSCM 81365, model numbers 2430 and 2433, or equivalent) may be used to remove nuts and bolts connecting engine case flanges. These wrenches have been authorized for disassembly only.

5. USE OF NYLON STRAPS.

a. If nylon straps are used to support, remove, or install components, they shall conform to requirements of T.O. 35D6-1-106, Aircraft and Engine Slings.

6. TORQUE WRENCH EXTENSIONS AND ADAPTERS.

a. Torque values stated in this manual are the values which apply when the torques are applied without wrench extensions. Occasionally, it is necessary to use special extensions, or an adapter wrench together with torque wrench. When using an extension or adapter, a new torque to be applied shall be computed. Refer to Torque Indicating Devices in T.O. 2-1-111. This same procedure applies to PWA number wrenches with built-in extensions.

7. PWA 50308 HYDRAULIC TORQUE WRENCH - GENERAL OPERATING PROCEDURE.

(See Figure 1.)

NOTE

- Hydraulic pump and wrench are integral details. Hoses are not to be separated from pump or wrench and pump is to be used only as detail of tool.
- System bleeding is required only when wrench has not been in constant use or air has been introduced to system. If bleeding is not to be accomplished begin at step b.

a. Bleed air from system as follows:

(1) Open air vent at pump.

(2) Start hydraulic pump and allow wrench to be filled with fluid. Refer to T.O. 32B14-5-2-1.

(3) Position selector to allow movement of travel indicator. As indicator approaches red scribe line, rotate selector to opposite position.

(4) As travel indicator approaches red scribe line at opposite end of scale, rotate selector back to original position in step a.3.

(5) Repeat procedure, allowing wrench to cycle from one direction to the other six times minimum.

(6) Close air vent on pump.

(7) Stop hydraulic pump.

b. Install wrench per paragraph describing specific torque operation to be accomplished.

c. Position shifting mechanism for desired direction of rotation as follows:

(1) Depress plunger.

(2) Push knob in direction of desired rotation until plunger is released and pops up.

(3) If plunger does not release after shifting mechanism has been positioned, relieve back pressure in system by turning selector valve in direction that shifting mechanism has been positioned.

d. Apply torque as follows:

(1) Start hydraulic pump.

(2) Open selector valve slowly to allow gradual increase in pressure.

(3) Position selector valve to allow pressure increase in wrench and rotation of wrenching splines.

(4) As travel indicator approaches red scribe line, rotate selector valve to opposite position.

(5) Allow travel indicator to approach red scribe line at opposite end of scale and reposition selector valve to same position as in step d.(2).

(6) Repeat procedure, allowing progressive increased torque until desired value is reached.

(7) When degrees of angular turn are required, set protractor to zero and secure in position with locking screw. Apply pressure until desired angle of turn is reached.

e. Bleed pressure from hoses and hydraulic pump before removing wrench.

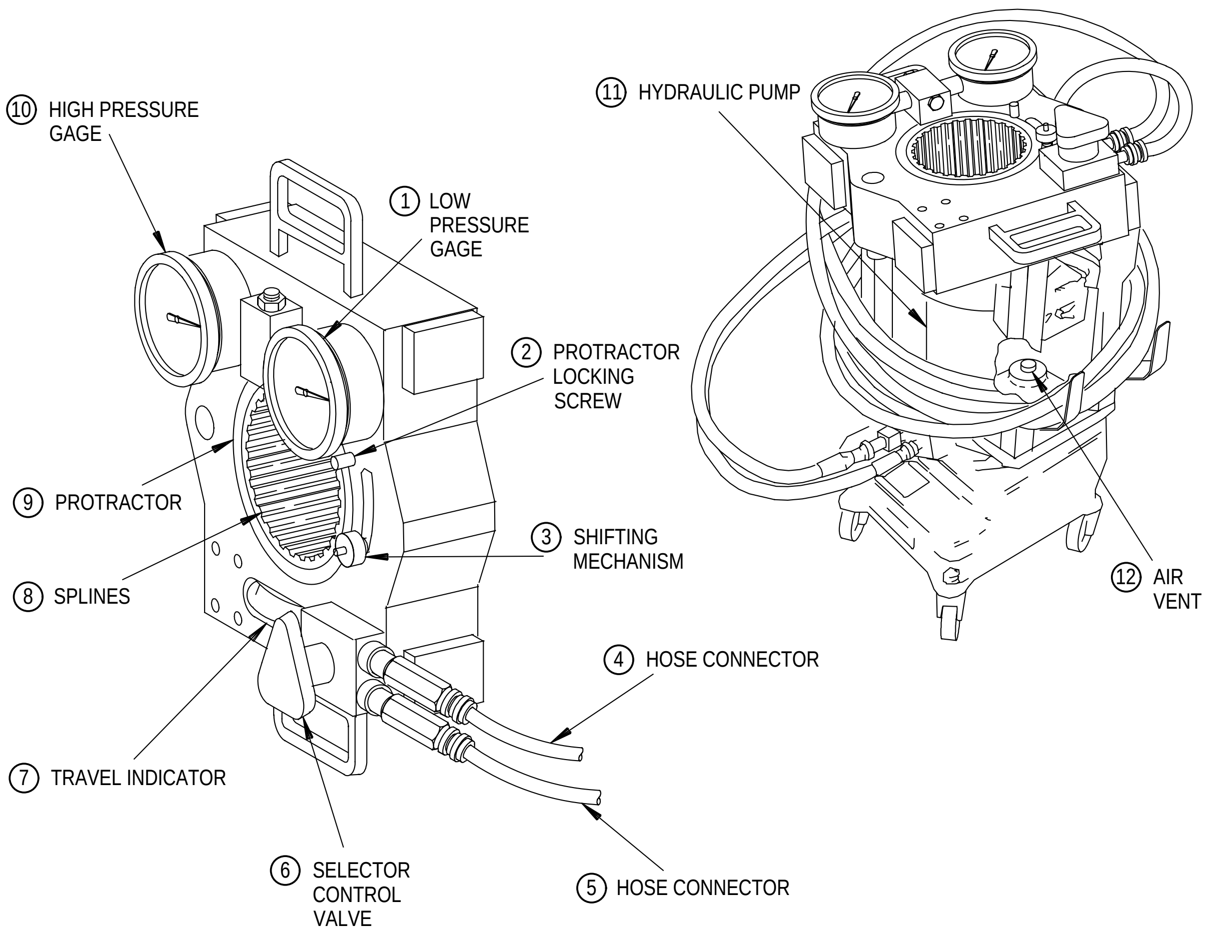
f. Remove wrench as follows:

(1) Turn selector valve to off position.

(2) Stop hydraulic pump.

(3) Remove wrench and tooling.

dpgbrKa



Index Number	Nomenclature	Function/Use
1.	Low pressure gage	Measures torque application below 12,000 pound-inches
2.	Protractor locking screw	Locks protractor in set position

Figure 1. PWA 50308 Hydraulic Torque Wrench

Legend for figure 1 (continued)

Index Number	Nomenclature	Function/Use
3.	Shifting mechanism	Controls direction of rotation of wrenching splines. Set shifting mechanism as follows: a. Depress plunger so it remains in down position. b. Push knob in desired direction of rotation until plunger pops up. c. If plunger does not pop up, turn selector control valve in same direction that shifting mechanism has been set. This will relieve back pressure buildup.
4.	Hose connector for hydraulic power source	Attachment point for low pressure return hose from pump
5.	Hose connector for hydraulic power source	Attachment point for high pressure hose from pump
6. 7.	Selector control valve Travel indicator	Selector control valve is used in conjunction with travel indicator to control rotation of wrenching splines. Direction of rotation depends on position of shifting mechanism. By positioning selector control valve in either L or R position, wrenching splines will rotate. As rotation occurs, operator must watch travel indicator through plexiglass window. When indicator approaches red scribemark, selector control valve shall be rotated to opposite position. This will reverse direction of travel of indicator. When indicator approaches opposite scribemark, selector control valve shall again be repositioned to reverse indicator travel. This procedure is repeated until prescribed amount of torque has been attained.
8.	Wrenching splines	Attaches to and drives splined end of applicable wrench
9.	360 degree protractor	Measures angle of turn. Prior to applying required angle of turn, set protractor at zero degrees.
10.	High pressure gage	Measures torque application above 12,000 pound-inches
11.	Hydraulic pump	Supplies hydraulic pressure. Unit has safety valve set at 10,000 psi.
12.	Air vent	Used to bleed air from system

8. CONVERSION OF PWA 50308 AND PWA 52666 HYDRAULIC WRENCH FOR USE WITHOUT ELECTRICAL POWER.

a. Remove AH-604 male connector from both H-927 hydraulic hoses on PWA 51946 pump.

b. Install an MS51887-3 reducer to each H-927 hose.

c. Remove AH-630 male connector from both hoses of either PWA 50308 or PWA 52666 hydraulic wrench.

d. Install AH-630 connectors on male end of MS51887-3 reducers.

e. Connect to PWA 50308 or PWA 52666 hydraulic wrench.

f. Actuate hydraulic wrench using pump action.

9. INSTRUMENTATION REQUIRED FOR ENGINE TEST.
(See Table 1.)

a. Table 1 provides a list of instrumentation requirements needed for engine testing.

b. The table identifies:

- Parameter
- Symbol for the parameter
- Number of readouts
- Units of measurement
- Standard range required
- Instrument accuracy required

Table 1. Engine Instrumentation Requirements

Parameter	Symbol	Number of Readouts	Units	Standard Range Required	Instrument Accuracy Required
Thrust	Fn	1	lb	0 to 50,000	±0.5%
Fan rotor speed	N1	1	rpm	0 to 12,000	±0.20%
High rotor speed	N2	1	rpm	0 to 15,000	±0.20%
Total fuel flow	Wftot	1	phr	5,000 to 70,000	±0.5%
Main fuel flow	Wfgg	1	phr	300 to 12,000	±0.5% 700 phr ±1.0% between 300 to 700 phr
Burner pressure	Pb	1	psig	0 to 600	±0.5%
Turbine exhaust pressure	Pt6m in HgA	1	in. HgA	0 to 100	±0.5% +0.1 in.
Fuel pump inlet pressure	Pfo	1	psig	0 to 100	±1.0%
Oil pump discharge	Popd	1	psig	0 to 300	±1.0%
Main oil pressure (transmitter) (differential) between Popd and breather pressure	Mop	1	psid	0 to 100	±1.0%

Table 1. Engine Instrumentation Requirements (continued)

Parameter	Symbol	Number of Readouts	Units	Standard Range Required	Instrument Accuracy Required
Augmentor duct pressure	Pab	1	psia	0 to 50	±0.5%
Air inlet total pressure (At least four probes must function)	Pt2	6	psid	0 to 1	±0.5%
Breather pressure	Pmb	1	in. Hg	0 to 15	±0.5% +0.1 in.
Fan discharge duct pressure	Pt2.5	1	psig	0 to 250	+1.0%
Starter air inlet pressure	SIP	1	psig	0 to 100	+1.0%
Air inlet total temperature (at inlet screen)	Tt2	1	°F	−20 to 150	±1.0°F
Fuel inlet temperature	Tfo	1	°F	−20 to 200	±5.0°F
Fan turbine inlet temperature (average)	FTIT	1	°F	0 to 2400	±5.0°F
Fan turbine inlet temperature (individual)	FTIT	7	°F	0 to 2400	±5.0°F

Table 1. Engine Instrumentation Requirements (continued)

Parameter	Symbol	Number of Readouts	Units	Standard Range Required	Instrument Accuracy Required
Main oil temperature	MOT	1	°F	–20 to 700	±5.0°F
No. 4 bearing compartment scavenge oil temperature (applies to engines P680283 through P680334 not incorporating TCTO 2J-F100(II)-506)	SOT4	1	°F	–20 to 600	±5.0°F
Fan discharge duct temperature	Tt2.5A	1	°F	0 to 400	±5.0°F
Compressor exit discharge temperature	Ts3	1	°F	0 to 1500	±2.0°F
Starter air inlet temperature	SIT	1	°F	–20 to 150	±2.0°F
Main flowmeter fuel temperature	Tfgg	1	°F	–20 to 200	±5.0°F
Anti-ice valve manifold downstream temperature	TAI	1	°F	0 to 1500	±2.0°F

Table 1. Engine Instrumentation Requirements (continued)

Parameter	Symbol	Number of Readouts	Units	Standard Range Required	Instrument Accuracy Required
Power lever	PLA	1	Degrees	0 to 130	±1.0 degree
Exhaust nozzle position	ENP	1	Percent	0 to 100	±1%
Compressor inlet variable vanes	CIVV	1	Degrees	–25 to 0	±1.0 degree
Rear compressor variable vanes	RCVV	1	Degrees	–41 to +4	±1.0 degree
Anti-ice valve switch	-	1	Open-close	-	-
Ignition	-	1	On-off Right-Left	-	-
Rocket fire switch	-	1	Momentary closure	-	-
DEEC trim removal switch	-	1	On-Off	-	-
Idle exhaust nozzle reset switch	-	1	Open-close	-	-
DEEC fault level lights	-	3	-	-	-

Table 1. Engine Instrumentation Requirements (continued)

Parameter	Symbol	Number of Readouts	Units	Standard Range Required	Instrument Accuracy Required
Mn simulator digital readout	-	1	Octal units	-	-
Fuel derichment valve switch	-	1	On-Off	-	-
Inlet case vertical vibration	VICV	1	mils	0 to 7.5	±5.0 % overall single amplitude limit
Difusser case horizontal vibration	VDCH	1	mils	0 to 7.5	±5.0 % overall single amplitude limit
Gearbox vertical vibration	VGBV	1	mils	0 to 7.5	±5.0 % overall single amplitude limit

WORK PACKAGE

MASTER NUMERICAL LIST OF SUPPORT EQUIPMENT

EFFECTIVITY: ENGINE MODEL F100-PW-229

LIST OF EFFECTIVE WP PAGES

Total Number of Pages in this WP is 54

PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.
1	30	12	24	26	27
2	27	13	27	26A	30
2A Added	17	14	25	26B	25
2B Blank Added	17	15 - 16	30	27 - 28	29
3	0	17	29	29	30
4	30	18 - 20	27	30	28
4A	28	21	30	30A	24
4B	29	22	27	30B	29
5	25	22A	28	30C - 30H	30
6	22	22B	25	30J Added	30
7	30	23	20	30K Blank Added	30
8	25	24	22	31	30
9	23	24A	28	32	16
10	25	24B	25	33	28
11	18	25	30	34 Blank	24

REFERENCE MATERIAL REQUIRED

None

APPLICABLE TIME COMPLIANCE TECHNICAL ORDERS

T. O. No.	Date	Level	Title (ECP No.)
2J-F100-885	31 OCT 85	I	Modification of PWA 57649 Adapter Set and Reidentification to PWA 57806, F100-PW-100/-200/-220/-220E/-229 Engines, F-15/F-16 Aircraft (EC 93QC203)
2J-F100-886	31 OCT 85	I	Modification of PWA 57650 Adapter Set and Reidentification to PWA 57807, F100-PW-100/-200/-220/-220E/-229 Engines, F-15/F-16 Aircraft (EC 93NC328)
2J-F100-890	15 JUL 95	O/I	Modification of PWA 57447 Puller F100-PW-100/-200/-220/-220E/-229 Engines, F-15/F-16 Aircraft (EC 94QC003)
2J-F100229-541	28 SEP 98	O/I	Modification of PWA 55760 Fixture For Improved Part Retention, F100-PW-229 Engines, F-15/F-16 Aircraft (ECP 92QC109)
2J-F100229-546	30 SEP 95	O/I	Modification of Retainer Ball Lock Pin Handle PWA 57614, F100-PW-229 Engine, F-15/F-16 Aircraft (ECP 93QC038)
2J-F100229-553	15 FEB 95	O/I	Modification of PWA 57653 Tool Set, F100-PW-229 Engine, F-15/F-16 Aircraft (ECP 94QC004-1)
2J-F100229-554	15 FEB 95	O/I	Modification of PWA 57704 Adapter, F100-PW-229 Engine, F-15/F-16 Aircraft (ECP 89QA624-1)
2J-F100229-560	30 APR 95	O/I	Reoperation of PWA 57742, No. 4 Bearing Front Seal Assembly Leak Check Fixture, F100-PW-229 Engine, F-15/F-16 Aircraft (ECP 93QC001AR1)
2J-F100229-585	30 SEP 98	O/I	Modify PWA 57765 HPT Assembly/ Disassembly Stand By Reoperating PWA 57504-1 Crimper, F100-PW-229 Engines, F-15/F-16 Aircraft (ECP 96QC127)
2J-F100229-587	15 OCT 98	O/I	Reoperation of PWA 57753 Hydraulic Pusher, F100-PW-229 Engines, F-15/F-16 Aircraft (ECP 94QC005)
2J-F100229(VI)-506	15 MAR 95	O/I	Reoperation of PWA 57503 Assembly/ Disassembly Stand For F100-PW-229 High Pressure Turbine. (ECP 90QA009-1)

CONSUMABLE MATERIALS

None

EXPENDABLE ITEMS

None

APPLICABLE SUPPORT EQUIPMENT

None

ILLUSTRATED SUPPORT EQUIPMENT

None

1. INTRODUCTION.

a. Provided in this work package is a master numerical list of support equipment required at Depot level of repair. It identifies by T.O. and work package where in the manual set the tool is used.

Master Numerical List of Support Equipment

Part Number	Nomenclature	Technical Order Number	WP/SWP No.
AF8624150	Adapter	2J-F100-11-2	004 00
ALC3000E	Trailer	2J-F100-11-2	004 00, 402 00
AMP MS24256R16	Socket	2J-F100-53-4	023 00
AMP MS24256R20	Socket	2J-F100-53-4	023 00
AMP MS27534-20	Socket	2J-F100-53-4	023 00
CRS 2000	Curing System	2J-F100-53-10	416 00
FLD131316	Guide	2J-F100-53-11	703 00
GS22039-1	Adapter	2J-F100-53-4	010 00
Habco 1093005	Checker, Portable Air Flow	2J-F100-53-1 2J-F100-53 5 2J-F100-53-7 2J-F100-53-11	025 01 430 00, 431 00 432 00, 614 00, 615 00, 703 00 606 00, 705 00
Habco 1543003	Cart, Vacuum Air Flow	2J-F100-53-1 2J-F100-53-5 2J-F100-53-7 2J-F100-53-9	024 01 429 00, 430 00, 432 00 701 00, 704 00, 706 00, 708 00 702 00
HLA1051	Air Driver	2J-F100-53-6 2J-F100-53-9	701 00, 704 00 603 00, 604 00
HLA2030	Driver	2J-F100-53-9	603 00, 604 00
LM 1001	Spacer	2J-F100-53-7	619 00, 619 01
LM 1003	Retainer	2J-F100-53-10	701 00
LM 1004	Plate	2J-F100-11-2	006 00
LM 1005	Hose Assy	2J-F100-53-6	705 00
LM 1006	Hose Assy	2J-F100-53-6	705 00
LM 1007	Hose Assy	2J-F100-53-6	705 00
LM 1008	Pin	2J-F100-53-6	705 00
LM 1009	Pry Bar	2J-F100-53-8	011 00
LM 1010	Wedge	2J-F100-53-6	701 00
LM 1012	Adapter	2J-F100-53-4 2J-F100-53-5	009 00 064 00
LM 1014	Retainer	2J-F100-53-7	619 00, 619 01
LM 1016	Adapter	2J-F100-53-4	007 00
LM 1017	Fixture	2J-F100-53-4	008 00
LM 1021	Clamp	2J-F100-53-9	011 00, 611 00, 614 00, 703 00
LM 1022	Spacer	2J-F100-53-5	103 00, 104 00, 132 00, 704 00, 722 00, 723 00
LM 1023	Set, Pilot Drill	2J-F100-53-7	035 00, 630 00
LM 1024	Set, Finishing Drill	2J-F100-53-7	035 00, 630 00
LM 1025	Guide Tube	2J-F100-53-5	026 00
LM 1034	Guide Tube	2J-F100-53-4	104 00
LM 1053	Adapter, Installer	2J-F100-53-9	702 00
LM 1054	Clamp - Heat Shield	2J-F100-53-7	472 00

Master Numerical List of Support Equipment (continued)

Part Number	Nomenclature	Technical Order Number	WP/SWP No.
LM 1070	Braze Preform	2J-F100-53-7	472 00
LM 1071	Braze Preform	2J-F100-53-7	472 00
LM 1077	Drill Bushing	2J-F100-53-5 2J-F100-53-6	525 00, 526 00 424 00
LM 1085	Drift	2J-F100-53-6	427 00
LM 1086	Pusher	2J-F100-53-6	427 00
LM 1089	Wrench	2J-F100-53-5	129 00, 706 00
LM 1097	Holder	2J-F100-53-7	706 00
LM 1106	Pin	2J-F100-53-7	701 00, 706 00
MS9314-06	Cap	2J-F100-53-9	702 00
NSN 4920006702592	Stand	2J-F100-53-9	011 00, 611 00, 614 00
NSN 5120-00-839-8139	Wrench	2J-F100-53-4	102 00
NSN 5120-01-026-4691	Wrench	2J-F100-53-4	102 00
NSN 6625-00-643-1686 (PSM-6)	Ohmmeter	2J-F100-11-2 2J-F100-53-4	507 00, 612 00, 627 01 008 00, 009 00, 013 00, 015 00, 019 00, 041 00
NSN 6650-01-412-8471 (IW-2A)	Digital Analyzer	2J-F100-53-5	021 01
NSN 6650-01-414-6701 (AFK-R080-045-SWM)	Digital Measuring Borescope	2J-F100-53-5	021 01
P4006409	Support	2J-F100-53-5	005 00, 008 00
P4030580	Bumper	2J-F100-53-5	005 00, 043 00
PM11-29/E	Pump	2J-F100-11-2	109 00, 301 00
PN 103-20101-1	Mount	2J-F100-53-5	008 00
PN 103-20201-1	Mount	2J-F100-53-5	008 00
PN 103-2032-1	Coupling	2J-F100-11-5	005 00
PN 103-2033-7	Jaw	2J-F100-11-5	005 00
PN 103-2042-1	Bracket	2J-F100-11-5	005 00
PN 103-2052-1	Probe	2J-F100-11-5	005 00
PN 103-2081-1	Band	2J-F100-11-5	005 00
PN 103-2092-1B	Wrench	2J-F100-11-5	005 00
PN 103-3111-1	Control	2J-F100-11-2	670 00
PN 137375	Ignition test set	2J-F100-53-4	020 00, 024 00, 025 00, 026 00
PN 164-1022-1	Bracket	2J-F100-11-5	005 00

Master Numerical List of Support Equipment (continued)

Part Number	Nomenclature	Technical Order Number	WP/SWP No.
PN 2271A	Transducer	2J-F100-11-2	005 00
PN 2552146	Adapter	2J-F100-53-4	009 00
PN 2563702	Adapter	2J-F100-53-4	009 00
PN 2563752	Adapter	2J-F100-53-4	009 00
PN 2564606-11	Adapter	2J-F100-53-4	036 00
PN 2564726-13	Adapter	2J-F100-53-4	044 00
PN 2564726-14	Adapter	2J-F100-53-4	044 00
PN 4006409	Support	2J-F100-11-2	402 00
PN 4030580	Support	2J-F100-11-2	402 00
PN 4039184	Coupling	2J-F100-11-2	005 00
PN 63500	Strap Wrench	2J-F100-53-6	005 00
PN 645A-6	Valve	2J-F100-53-6	005 00
PP-1-902	Web Strap	2J-F100-53-9	701 00
PSM-6 (or equivalent)	Volt/Meter	2J-F100-11-2	507 00, 612 00, 627 01
PWA 7368	Base	2J-F100-53-11	025 00, 027 00
PWA 7454	Sling	2J-F100-53-5	041 00, 042 00, 044 00, 045 00
PWA 8151 (Superseded by PWA 56646)	Connector		
PWA 10001 (Superseded by PWA 56572)	Adapter		
PWA 10356	Adapter	2J-F100-53-7	029 00, 614 00
PWA 10631	Base	2J-F100-53-11	601 00

Master Numerical List of Support Equipment (continued)

Part Number	Nomenclature	Technical Order Number	WP/SWP No.
PWA 10673	Adapter	2J-F100-53-5 2J-F100-53-9	131 00 004 00, 021 00, 703 00
PWA 10687	Sling	2J-F100-53-5 2J-F100-53-9	131 00 004 00, 011 00, 021 00, 703 00
PWA 14175	Sling	2J-F100-53-7	011 00, 014 00, 029 00, 614 00, 701 00, 706 00
PWA 14266	Flaring Tool	2J-F100-53-7	432 00
PWA 14383	Pin	2J-F100-53-6 2J-F100-53-7 2J-F100-53-11	603 00 612 00 701 00, 706 00 606 00
PWA 16868	Stand	2J-F100-53-7	029 00, 614 00
PWA 17019	Holder	2J-F100-53-8	303 00, 310 00
PWA 20048	Weight	2J-F100-53-7	339 00
PWA 21350-41	Bearing	2J-F100-53-6	706 00
PWA 21350-42	Bearing	2J-F100-53-6	706 00
PWA 21350-43	Bearing	2J-F100-53-7	623 00
PWA 21350-44	Bearing	2J-F100-53-7	623 00

Master Numerical List of Support Equipment (continued)

Part Number	Nomenclature	Technical Order Number	WP/SWP No.
PWA 21500	Adapter	2J-F100-53-5	201 00, 601 00
		2J-F100-53-7	024 00, 025 00, 026 00, 603 00, 604 00
		2J-F100-53-9	025 00, 030 00, 606 00, 610 00
		2J-F100-53-11	027 00, 028 00, 602 00, 605 00, 606 00
PWA 21816 (Superseded by PWA 27606)	Stand		
PWA 21875	Regulator	2J-F100-53-4	018 00
		2J-F100-53-5	411 00, 508 00
		2J-F100-53-6	602 00
		2J-F100-53-7	602 00, 607 00, 611 00, 613 00, 618 00
		2J-F100-53-9	607 00
		2J-F100-53-11	606 00, 705 00
PWA 22563 (Superseded by PWA 56338)	Stand		
PWA 22726 (Superseded by PWA 56595)	Puller	2J-F100-53-3	007 00
PWA 2388	Hook	2J-F100-53-5	101 00, 108 00, 132 00, 704 00, 727 00
		2J-F100-53-6	011 00, 012 00, 013 00, 014 00, 701 00, 702 00, 703 00, 704 00, 706 00
		2J-F100-53-7	004 00, 005 00, 011 00, 012 00, 013 00, 014 00, 033 01, 035 00, 619 01, 622 00, 623 00, 625 00, 701 00, 705 00, 706 00, 709 00
		2J-F100-53-8	004 00, 005 00
		2J-F100-53-9	011 00, 021 00
PWA 24667	Jack	2J-F100-53-5	605 00, 721 00
		2J-F100-53-11	011 00, 707 00
PWA 25672 (Superseded by PWA 61685)	Control		

Master Numerical List of Support Equipment (continued)

Part Number	Nomenclature	Technical Order Number	WP/SWP No.
PWA 26147	Adapter	2J-F100-53-5	041 00, 042 00, 044 00, 045 00, 101 00, 108 00, 131 00, 132 00, 133 00, 134 00, 136 00, 701 00, 702 00, 703 00, 704 00, 705 00, 727 00
		2J-F100-53-6	004 00, 005 00 011 00, 012 00, 013 00, 014 00, 701 00, 702 00, 703 00, 704 00, 706 00
		2J-F100-53-7	004 00, 005 00, 011 00, 012 00, 013 00, 014 00, 033 01, 619 01, 701 00, 705 00, 706 00, 709 00
		2J-F100-53-8	004 00, 005 00 011 00, 702 00
		2J-F100-53-9	004 00, 005 00, 011 00, 611 00, 613 00, 614 00, 703 00
		2J-F100-53-10	004 00, 005 00
PWA 26443	Dispenser	2J-F100-53-6	410 00
PWA 26523	Riveter	2J-F100-53-7	417 00, 418 00
PWA 26584	Arm	2J-F100-53-7	013 00, 014 00, 035 00, 622 00, 623 00, 625 00, 701 00, 709 00
PWA 27606 (Superseded by PWA 57412)	Stand		
PWA 31383	Chart	2J-F100-53-7	201 00
PWA 32704	Test Strip, Almen	2J-F100-53-7	405 00, 411 00
PWA 34571	Vacuum Chamber	2J-F100-53-6	410 00
PWA 37115 (Superseded by PWA 56336)	Sling		
PWA 50003	Test Stand	2J-F100-53-1	024 00
		2J-F100-53-5	429 00, 430 00, 432 00
		2J-F100-53-7	701 00, 704 00, 706 00, 708 00
		2J-F100-53-9	702 00
PWA 500047	Gage	2J-F100-53-9	603 00

Master Numerical List of Support Equipment (continued)

Part Number	Nomenclature	Technical Order Number	WP/SWP No.
PWA 50025	Test Set	2J-F100-11-2	664 00
		2J-F100-53-3	004 00
		2J-F100-53-4	020 00, 024 00, 025 00, 026 00
PWA 50047	Cart	2J-F100-53-1	025 00
		2J-F100-53-5	430 00, 431 00
		2J-F100-53-7	432 00, 614 00, 615 00, 703 00
		2J-F100-53-11	606 00, 705 00
PWA 50096	Hydraulic Cart	2J-F100-11-2	306 00, 670 00
		2J-F100-53-4	009 00, 010 00, 013 00, 034 00, 036 00, 037 00, 101 00, 102 00, 104 00
		2J-F100-53-6	705 00
		2J-F100-53-7	006 00, 707 00
PWA 50144	Light Source	2J-F100-53-4	008 00, 026 00, 730 00
		2J-F100-53-5	021 01
		2J-F100-53-8	702 00
PWA 50301 (Superseded by PWA 56337)	Sling		
PWA 50308	Wrench	2J-F100-53-5	103 00, 104 00, 132 00, 704 00, 722 00, 723 00
		2J-F100-53-6	012 00, 702 00
		2J-F100-53-7	011 00, 014 00, 024 00, 031 00, 603 00, 616 00, 701 00, 706 00
		2J-F100-53-9	011 00, 012 00, 611 00, 701 00
PWA 50309	Drift	2J-F100-53-6	706 00
PWA 50310	Riveter	2J-F100-53-3	008 00
		2J-F100-53-7	419 00, 420 00, 616 00
PWA 50319	Maintenance Kit	2J-F100-53-5	021 00, 022 00, 023 00, 024 00, 025 00, 026 00, 027 00
PWA 50336	Adapter (Used in pairs)	2J-F100-11-2	004 00, 402 00
		2J-F100-53-5	004 00, 005 00, 008 00, 045 00
PWA 50338	Riveter	2J-F100-53-6	706 00
		2J-F100-53-9	613 00

Master Numerical List of Support Equipment (continued)

Part Number	Nomenclature	Technical Order Number	WP/SWP No.
PWA 50347	Wrench	2J-F100-53-5	201 00, 601 00
PWA 50348	Holder	2J-F100-53-5	201 00, 601 00
PWA 50385	Nut	2J-F100-53-6	706 00
PWA 50386 (Superseded by PWA 56687)	Wrench		
PWA 50393	Puller	2J-F100-53-6	706 00
PWA 50401	Drift	2J-F100-53-11	602 00
PWA 50402	Drift	2J-F100-53-11	602 00, 701 00
PWA 50403	Pin	2J-F100-53-11	013 00, 605 00, 701 00, 702 00
PWA 50406	Holder	2J-F100-53-11	014 00, 014 01, 703 00, 703 01
PWA 50407 (Superseded by PWA 55824)	Wrench		
PWA 50408	Base	2J-F100-53-11	604 00
PWA 50409	Puller	2J-F100-53-3 2J-F100-53-11	010 00 014 00, 014 01
PWA 50410	Puller	2J-F100-53-3 2J-F100-53-11	011 00 014 00, 014 01
PWA 50413	Base	2J-F100-53-11	022 00
PWA 50414	Plate	2J-F100-53-11	022 00
PWA 50415	Drift	2J-F100-53-11	022 00
PWA 50418	Base	2J-F100-53-11	021 00
PWA 50419 (Superseded by PWA 56726)	Drift		
PWA 50420	Drift	2J-F100-53-11	021 00
PWA 50422	Drift	2J-F100-53-11	701 00
PWA 50424	Wrench	2J-F100-53-11	013 00
PWA 50425	Riveter	2J-F100-53-11	701 00
PWA 50426	Puller	2J-F100-53-3 2J-F100-53-11	012 00 013 00
PWA 50428	Drift	2J-F100-53-11	026 00, 701 00
PWA 50429	Base	2J-F100-53-11	026 00, 701 00
PWA 50430	Wrench	2J-F100-53-11	013 00, 701 00
PWA 50432	Drift	2J-F100-53-11	603 00
PWA 50433	Holder	2J-F100-53-5 2J-F100-53-11	205 00, 605 00 023 00, 603 00, 704 00, 705 00, 707 00
PWA 50434	Wrench	2J-F100-53-11	023 00, 603 00
PWA 50439	Puller	2J-F100-53-11	023 00
PWA 50442	Base	2J-F100-53-11	021 00

Master Numerical List of Support Equipment (continued)

Part Number	Nomenclature	Technical Order Number	WP/SWP No.
PWA 50443	Drift	2J-F100-53-11	021 00
PWA 50444	Drift	2J-F100-53-11	601 00
PWA 50448	Drift	2J-F100-53-11	604 00
PWA 50449	Plate	2J-F100-53-11	025 00
PWA 50450	Drift	2J-F100-53-11	025 00
PWA 50451	Puller	2J-F100-53-3 2J-F100-53-11	013 00 014 00, 014 01
PWA 50452	Drift	2J-F100-53-11	702 00
PWA 50453	Drift	2J-F100-53-11	605 00
PWA 50454	Holder	2J-F100-53-11	027 00, 605 00
PWA 50455	Wrench	2J-F100-53-11	027 00, 605 00
PWA 50456	Drift	2J-F100-53-11	605 00
PWA 50457	Drift	2J-F100-53-11	605 00
PWA 50459	Wrench	2J-F100-53-3 2J-F100-53-11	014 00 027 00, 605 00
PWA 50460	Wrench	2J-F100-53-11	027 00, 605 00
PWA 50461	Drift	2J-F100-53-11	027 00, 605 00
PWA 50462	Base	2J-F100-53-11	027 00
PWA 50463	Base	2J-F100-53-11	027 00
PWA 50465	Holder	2J-F100-53-11	027 00, 605 00
PWA 50467	Drift	2J-F100-53-11	027 00
PWA 50468	Split Plate	2J-F100-53-11	027 00
PWA 50469	Drift	2J-F100-53-11	027 00
PWA 50471	Pusher	2J-F100-53-11	013 00
PWA 50473	Adapter	2J-F100-53-5 2J-F100-53-11	106 00, 205 00 011 00, 703 00, 703 01, 707 00
PWA 50476	Base	2J-F100-53-11	605 00
PWA 50482	Holder	2J-F100-53-11	011 00, 703 00, 703 01, 707 00
PWA 50510 (Superseded by PWA 56317)	Puller		

Master Numerical List of Support Equipment (continued)

Part Number	Nomenclature	Technical Order Number	WP/SWP No.
PWA 50511 (Superseded by PWA 56317)	Puller		
PWA 50514	Puller	2J-F100-53-11	402 00
PWA 50522	Holder	2J-F100-53-11	704 00
PWA 50523	Adapter	2J-F100-53-11	704 00
PWA 50525	Holder	2J-F100-53-11	704 00
PWA 50526	Adapter	2J-F100-53-11	704 00
PWA 50527	Adapter	2J-F100-53-11	704 00
PWA 50528	Holder	2J-F100-53-11	703 00, 703 01
PWA 50529	Adapter	2J-F100-53-11	703 00, 703 01
PWA 50541	Cover	2J-F100-53-5	429 00
PWA 50569	Adapter	2J-F100-53-7	704 00
PWA 50581	Drift	2J-F100-53-5	603 00
PWA 50583	Wrench	2J-F100-53-3 2J-F100-53-5	005 00 041 00, 044 00, 045 00, 603 00
PWA 50601 (Superseded by PWA 56506)	Drift		
PWA 50603	Adapter	2J-F100-53-3 2J-F100-53-7	005 00, 016 00 024 00, 603 00
PWA 50604	Wrench	2J-F100-53-3 2J-F100-53-7	005 00, 017 00 024 00, 603 00
PWA 50605	Puller	2J-F100-53-7	024 00
PWA 50606	Puller	2J-F100-53-7	024 00
PWA 50607	Puller	2J-F100-53-5 2J-F100-53-7	005 00, 018 00 024 00
PWA 50608	Base	2J-F100-53-7	026 00
PWA 50609	Drift	2J-F100-53-7	026 00, 608 00
PWA 50610	Base	2J-F100-53-7	608 00
PWA 50611	Pin (Used in pairs)	2J-F100-53-7 2J-F100-53-11	605 00, 608 00, 701 00, 706 00 703 00, 703 01
PWA 50612	Base	2J-F100-53-7	026 00, 608 00, 623 00
PWA 50613 (Superseded by PWA 56507)	Drift		
PWA 50614	Puller	2J-F100-53-7	026 00
PWA 50616	Base	2J-F100-53-11	602 00
PWA 50619	Puller	2J-F100-53-3 2J-F100-53-7	019 00 014 00, 625 00

Master Numerical List of Support Equipment (continued)

Part Number	Nomenclature	Technical Order Number	WP/SWP No.
PWA 50621	Drift	2J-F100-53-11	027 00
PWA 50624	Plate	2J-F100-53-11	027 00
PWA 50628	Wrench	2J-F100-53-7	014 00, 701 00
PWA 50629 (Superseded by PWA 56688)	Adapter		
PWA 50632	Plate	2J-F100-53-11	026 00
PWA 50635	Puller	2J-F100-53-7	014 00, 625 00
PWA 50637	Puller	2J-F100-53-11	701 00
PWA 50638	Pusher	2J-F100-53-11	013 00
PWA 50639	Pusher	2J-F100-53-11	701 00
PWA 50640	Drift	2J-F100-53-11	026 00
PWA 50642	Drift	2J-F100-53-11	702 00
PWA 50648	Base	2J-F100-53-11	602 00, 604 00, 605 00, 703 00
PWA 50661	Drift	2J-F100-53-11	024 00
PWA 50666	Puller	2J-F100-53-11	011 00
PWA 50669	Pusher	2J-F100-53-5	505 00
PWA 50674	Bearing	2J-F100-53-11	414 00
PWA 50675	Bearing	2J-F100-53-11	414 00
PWA 50676	Weight	2J-F100-53-11	414 00
PWA 50677	Weight	2J-F100-53-11	414 00
PWA 50680	Drift	2J-F100-53-7	605 00
PWA 50681	Puller	2J-F100-53-7	022 00
PWA 50682	Wrench	2J-F100-53-7	022 00, 605 00
PWA 50684	Base	2J-F100-53-7	604 00
PWA 50685	Puller	2J-F100-53-3 2J-F100-53-7	020 00 025 00
PWA 50686	Wrench	2J-F100-53-7	025 00, 604 00
PWA 50687	Drift	2J-F100-53-7	604 00
PWA 50688	Support	2J-F100-53-7	604 00
PWA 50689	Support	2J-F100-53-7	025 00, 604 00
PWA 50690	Drift	2J-F100-53-7	025 00, 604 00
PWA 50692	Drift	2J-F100-53-7	604 00
PWA 50693	Drift	2J-F100-53-7	025 00
PWA 50695	Holder	2J-F100-53-7	025 00, 604 00
PWA 50696	Wrench	2J-F100-53-3 2J-F100-53-7	021 00 025 00, 604 00
PWA 50698	Puller	2J-F100-53-7	025 00

Master Numerical List of Support Equipment (continued)

Part Number	Nomenclature	Technical Order Number	WP/SWP No.
PWA 50699	Wrench	2J-F100-53-7	025 00, 604 00
PWA 50700 (Superseded by PWA 57393)	Heater		
PWA 50701	Puller	2J-F100-53-7	022 00
PWA 50702	Drift	2J-F100-53-7	605 00
PWA 50704	Puller	2J-F100-53-7	014 00
PWA 50707 (Superseded by PWA 55915)	Pusher		
PWA 50719	Puller	2J-F100-53-6 2J-F100-53-7	427 00 469 00
PWA 50775 (Superseded by PWA 56338)	Stand		
PWA 50792	Puller	2J-F100-53-5 2J-F100-53-10	503 00, 544 00 421 00
PWA 50793	Anvil	2J-F100-53-5 2J-F100-53-10	503 00, 544 00 421 00
PWA 50862	Support	2J-F100-53-7	022 00
PWA 50863	Drift	2J-F100-53-7	022 00
PWA 50876	Pin	2J-F100-53-11	014 00, 014 01, 701 00, 702 00, 703 00, 703 01
PWA 50888	Riveter	2J-F100-53-9	425 00
PWA 50889	Riveter	2J-F100-53-9	425 00
PWA 50906	Spacer	2J-F100-53-7	623 00
PWA 50909	Drift	2J-F100-53-7	623 00
PWA 50910	Puller	2J-F100-53-7	625 00
PWA 50921	Flaring Tool	2J-F100-53-7	435 00
PWA 50940	Adapter	2J-F100-53-7	623 00
PWA 50945	Puller	2J-F100-53-9	031 00
PWA 50950	Puller	2J-F100-53-9	601 00
PWA 50956	Stand	2J-F100-53-8	702 00
PWA 50966	Spacer	2J-F100-53-7	623 00
PWA 50968	Drift	2J-F100-53-7	031 00, 616 00
PWA 50970	Base	2J-F100-53-7	031 00
PWA 50971	Wrench	2J-F100-53-7	031 00, 616 00
PWA 50973	Clamp	2J-F100-53-9	021 00
PWA 50974	Riveter	2J-F100-53-5	505 00
PWA 50975 (Superseded by PWA 57780)	Drift		

Master Numerical List of Support Equipment (continued)

Part Number	Nomenclature	Technical Order Number	WP/SWP No.
PWA 50981 (Superseded by PWA 57780)	Puller		
PWA 50985	Wrench	2J-F100-53-7	623 00, 625 00
PWA 50992	Adapter	2J-F100-53-7	004 00, 012 00, 705 00
PWA 50993	Spacer	2J-F100-53-5 2J-F100-53-6 2J-F100-53-7	041 00, 045 00, 136 00, 701 00 004 00, 005 00, 011 00, 702 00, 706 00 013 00, 622 00, 625 00, 709 00
PWA 50994	Spacer	2J-F100-53-5	044 00
PWA 50996 (Superseded by PWA 56731)	Ring		
PWA 51010 (Superseded by PWA 53878)	Puller		
PWA 51021	Fixture	2J-F100-53-3 2J-F100-53-7	004 00 607 00
PWA 51026	Eye	2J-F100-53-9	021 00, 611 00
PWA 51038	Adapter	2J-F100-53-10	004 00
PWA 51045	Spacer	2J-F100-53-9	611 00
PWA 51046	Bearing	2J-F100-53-9	611 00
PWA 51048	Wrench	2J-F100-53-3 2J-F100-53-9	026 00 611 00, 614 00
PWA 51049	Pusher	2J-F100-53-3 2J-F100-53-9	027 00 611 00
PWA 51051	Holder	2J-F100-53-9	611 00, 614 00
PWA 51056	Eye	2J-F100-53-9	011 00, 611 00, 614 00, 703 00
PWA 51059	Pusher	2J-F100-53-9	611 00
PWA 51061 (Superseded by PWA 53879)	Puller		
PWA 51063	Puller	2J-F100-53-9	026 00
PWA 51101	Plug	2J-F100-53-5	429 00
PWA 51102	Plug	2J-F100-53-5	429 00
PWA 51103	Adapter	2J-F100-11-2 2J-F100-53-5 2J-F100-53-11	306 00 429 00 705 00

Master Numerical List of Support Equipment (continued)

Part Number	Nomenclature	Technical Order Number	WP/SWP No.
PWA 51110	Adapter	2J-F100-53-5	004 00, 042 00
PWA 51111	Adapter	2J-F100-53-5	004 00, 042 00
PWA 51112	Adapter	2J-F100-53-5	004 00, 042 00
PWA 51113	Adapter	2J-F100-53-5	004 00, 042 00
PWA 51120	Stand	2J-F100-53-10	011 00, 021 00, 603 00
PWA 51124	Adapter	2J-F100-53-5	041 00, 042 00, 044 00, 045 00
PWA 51134	Cover	2J-F100-53-11	705 00
PWA 51135	Cover	2J-F100-53-11	705 00
PWA 51153	Lap	2J-F100-53-5	404 00, 504 00
PWA 51154	Gage	2J-F100-53-7	701 00
PWA 51162	Adapter	2J-F100-53-7	708 00
PWA 51171	Riveter	2J-F100-53-8	702 00
PWA 51192	Drain Cap	2J-F100-11-2 2J-F100-53-4 2J-F100-53-5	108 00, 306 00 031 00, 033 00 106 00, 110 00
PWA 51196	Wrench	2J-F100-53-5 2J-F100-53-9	111 00, 119 00, 709 00, 720 00 702 00
PWA 51225	Adapter	2J-F100-53-8	702 00
PWA 51230	Base	2J-F100-53-7	024 00, 603 00
PWA 51298 (Superseded by PWA 57937)	Eye		
PWA 51370	Eye	2J-F100-53-5	041 00, 042 00, 044 00, 045 00
PWA 51371 (Superseded by PWA 57938)	Eye		
PWA 51372	Connector	2J-F100-53-5 2J-F100-53-7	429 00 704 00
PWA 51374 (Superseded by PWA 56654)	Connector		
PWA 51375	Adapter	2J-F100-53-5 2J-F100-53-9	432 00 702 00
PWA 51376 (Superseded by PWA 56652)	Connector		
PWA 51409 (Superseded by PWA 57448)	Pump		
PWA 51415	Support	2J-F100-11-2 2J-F100-53-3 2J-F100-53-5	004 00, 402 00 037 00 004 00, 005 00, 008 00, 043 00, 045 00

Master Numerical List of Support Equipment (continued)

Part Number	Nomenclature	Technical Order Number	WP/SWP No.
PWA 51417	Adapter	2J-F100-11-2	004 00, 402 00
		2J-F100-53-5	004 00, 005 00, 008 88, 043 00, 045 00
PWA 51420	Adapter	2J-F100-53-5	204 00, 604 00
PWA 51429	Lap	2J-F100-53-5 2J-F100-53-11	404 00, 504 00 301 00, 401 00
PWA 51432	Adapter	2J-F100-53-6	705 00
PWA 51472	Adapter	2J-F100-53-6	705 00
PWA 51473	Adapter	2J-F100-53-6	705 00
PWA 51562	Base	2J-F100-53-10	425 00
PWA 51563	Drift	2J-F100-53-10	425 00
PWA 51579	Ring	2J-F100-53-7	339 00
PWA 51580	Adapter	2J-F100-53-7	339 00
PWA 51581	Adapter	2J-F100-53-7	339 00
PWA 51582	Ring	2J-F100-53-7	339 00
PWA 51583	Connector	2J-F100-53-7	703 00
PWA 51673	Drift	2J-F100-53-7	623 00, 701 00
PWA 51678	Puller	2J-F100-53-7	014 00
PWA 51679	Drift	2J-F100-53-7	625 00
PWA 51680	Base	2J-F100-53-7	625 00
PWA 51704	Wrench	2J-F100-53-4 2J-F100-53-5 2J-F100-53-7	024 00 720 00, 729 00 029 00, 706 00
PWA 51719 (Superseded by PWA 57839)	Adapter		
PWA 51720 (Superseded by PWA 56671)	Wrench		
PWA 51721	Guide	2J-F100-53-9	011 00, 611 00
PWA 51723	Indicator	2J-F100-53-9	611 00
PWA 51725 (Superseded by PWA 56682)	Retainer		
PWA 51751 (Superseded by PWA 56653)	Pusher		
PWA 51757	Torque adapter	2J-F100-53-3 2J-F100-53-4 2J-F100-53-5 2J-F100-53-10	004 00 040 00, 043 00, 045 00 101 00 011 00, 701 00, 702 00, 703 00
PWA 51758	Fixture	2J-F100-53-4 2J-F100-53-10	043 00 701 00

Master Numerical List of Support Equipment (continued)

Part Number	Nomenclature	Technical Order Number	WP/SWP No.
PWA 51762 (Superseded by PWA 56570)	Riveter		
PWA 51765 (Superseded by PWA 56326)	Heater		
PWA 51777 (Superseded by PWA 57886)	Heater		
PWA 51778	Drift	2J-F100-53-9	417 00
PWA 51790	Retainer	2J-F100-53-7	011 00, 706 00
PWA 51791	Retainer	2J-F100-53-6	012 00, 304 00, 702 00
PWA 51798	Wrench	2J-F100-53-5	205 00, 605 00, 721 00
PWA 51818	Base	2J-F100-53-7	025 00, 604 00
PWA 51819	Drift	2J-F100-53-7	604 00
PWA 51822	Drift	2J-F100-53-7	605 00
PWA 51823	Fixture	2J-F100-53-7	022 00, 605 00
PWA 51833	Puller	2J-F100-53-7	014 00
PWA 51838	Puller	2J-F100-53-7	011 00
PWA 51840 (Superseded by PWA 56511)	Puller		
PWA 51852	Adapter	2J-F100-53-5 2J-F100-53-7	704 00 011 00, 701 00, 706 00
PWA 51855	Stand	2J-F100-53-5	041 00, 044 00, 045 00, 701 00
PWA 51920	Adapter	2J-F100-11-2 2J-F100-53-5	004 00, 402 00 004 00, 005 00, 008 00, 043 00, 045 00,
PWA 51921	Adapter	2J-F100-11-2 2J-F100-53-5	004 00, 402 00 004 00, 005 00, 008 00, 043 00, 045 00,
PWA 51932	Heater	2J-F100-53-6 2J-F100-53-7 2J-F100-53-9	701 00 622 00, 706 00 611 00, 701 00
PWA 51944	Wrench	2J-F100-53-7	029 00, 614 00
PWA 51946	Pump	2J-F100-53-7 2J-F100-53-9	035 00, 622 00 021 00, 603 00, 611 00
PWA 51953	Drift	2J-F100-53-9	608 00
PWA 51955 (Superseded by PWA 56510)	Drift		
PWA 51959	Wrench	2J-F100-53-9	012 00, 701 00
PWA 51960	Holder	2J-F100-53-9	012 00, 611 00, 701 00
PWA 51966	Drift	2J-F100-53-11	402 00
PWA 51967	Drift	2J-F100-53-11	402 00
PWA 51970	Fixture	2J-F100-53-7	405 00
PWA 51974	Puller	2J-F100-53-7	405 00

Master Numerical List of Support Equipment (continued)

Part Number	Nomenclature	Technical Order Number	WP/SWP No.
PWA 51996	Puller	2J-F100-53-9	012 00
PWA 52041	Guide Tube	2J-F100-53-4 2J-F100-53-5	008 00 730 00
PWA 52176 (Detail of PWA 50025)	Lead	2J-F100-11-2 2J-F100-53-4 2J-F100-53-5	208 00 020 00, 024 00, 025 00, 026 00 116 00, 119 00
PWA 52234	Lead	2J-F100-53-4	020 00
PWA 52303	Spacer	2J-F100-53-6	706 00
PWA 52331	Lap	2J-F100-53-5	404 00, 504 00
PWA 52332	Lap	2J-F100-53-5	404 00, 504 00
PWA 52333	Lap	2J-F100-53-5	404 00, 504 00
PWA 52334	Lap	2J-F100-53-5	404 00, 504 00
PWA 52335	Lap	2J-F100-53-5	404 00, 504 00
PWA 52336	Lap	2J-F100-53-5 2J-F100-53-11	404 00, 504 00 301 00, 401 00
PWA 52353	Pin, Aligning	2J-F100-53-5 2J-F100-53-7	205 00, 605 00, 721 00 014 00, 701 00
PWA 52357	Riveter	2J-F100-53-5	601 00
PWA 52360	Puller	2J-F100-53-5	205 00
PWA 52411 (Superseded by PWA 56718)	Ring		
PWA 52424	Flaring Tool	2J-F100-53-7	426 00, 432 00
PWA 52426	Fixture	2J-F100-53-3 2J-F100-53-7	004 00 618 00
PWA 52451	Base	2J-F100-53-7	616 00
PWA 52453	Adapter	2J-F100-53-7	031 00, 616 00
PWA 52454	Heater	2J-F100-53-3 2J-F100-53-7	004 00 706 00
PWA 52464 (Superseded by PWA 56324)	Heater	2J-F100-53-3	004 00
PWA 52467	Drift	2J-F100-53-7	706 00
PWA 52478	Puller	2J-F100-53-7	029 00
PWA 52487	Puller	2J-F100-53-5	526 00
PWA 52488	Puller	2J-F100-53-5	526 00
PWA 52499 (Superseded by PWA 57740)	Adapter		
PWA 52514	Drill Jig	2J-F100-53-11	402 00
PWA 52515	Drift	2J-F100-53-11	402 00
PWA 52556	Crimper	2J-F100-53-9	611 00
PWA 52578 (Superseded by PWA 56637)	Sling		
PWA 52595	Plug	2J-F100-53-5	429 00

Master Numerical List of Support Equipment (continued)

Part Number	Nomenclature	Technical Order Number	WP/SWP No.
PWA 52614	Adapter	2J-F100-53-7	614 00, 615 00
PWA 52616	Puller	2J-F100-53-9	031 00
PWA 52625	Gage	2J-F100-53-7	614 00
PWA 52626	Gage	2J-F100-53-5	715 00, 720 00
PWA 52637	Spacer	2J-F100-53-7	623 00
PWA 52644	Sling	2J-F100-53-10	011 00, 021 00, 603 00, 701 00
PWA 52649	Adapter	2J-F100-53-9	011 00, 611 00
PWA 52665	Heater	2J-F100-53-7	623 00, 701 00
PWA 52666	Wrench	2J-F100-53-5 2J-F100-53-7	132 00 011 00
PWA 52667 (Superseded by PWA 56676)	Wrench		
PWA 52679	Adapter	2J-F100-53-10	011 00, 021 00, 603 00, 701 00
PWA 52681	Guide	2J-F100-53-10	701 00
PWA 52686 (Superseded by PWA 56675)	Wrench		
PWA 52741	Drift	2J-F100-53-9	425 00
PWA 52748 (Superseded by PWA 56651)	Adapter		
PWA 52756 (Superseded by PWA 57399)	Heater		
PWA 52760 (Superseded by PWA 56502)	Base		
PWA 52761	Cover	2J-F100-53-5	429 00
PWA 52762	Cover	2J-F100-53-5	429 00
PWA 52763	Cover	2J-F100-53-5	429 00
PWA 52765	Cover	2J-F100-53-5	429 00
PWA 52767	Wrench	2J-F100-53-7	434 00, 472 00
PWA 52769 (Superseded by PWA 56509)	Wrench		
PWA 52773	Puller	2J-F100-53-9	614 00
PWA 52784	Light Assembly	2J-F100-53-9	601 00
PWA 52785	Weight	2J-F100-53-9	601 00
PWA 52786	Weight	2J-F100-53-9	601 00
PWA 52787	Adapter	2J-F100-53-9	601 00
PWA 52788	Adapter	2J-F100-53-9	601 00

Master Numerical List of Support Equipment (continued)

Part Number	Nomenclature	Technical Order Number	WP/SWP No.
PWA 52790	Wrench	2J-F100-53-9	031 00
PWA 52838	Connector	2J-F100-53-11	705 00
PWA 52839	Holder	2J-F100-53-11	417 00
PWA 52843	Compressor	2J-F100-53-7	610 00, 701 00
PWA 52848 (Superseded by PWA 57400)	Heater		
PWA 52858	Spacer	2J-F100-53-6	706 00
PWA 52859 (Superseded by PWA 56582)	Heater		
PWA 52890 (Superseded by PWA 57885)	Heater		
PWA 52891 (Superseded by PWA 56566)	Wrench		
PWA 52930	Fixture	2J-F100-53-11	301 00
PWA 52941	Fixture	2J-F100-53-9	402 00
PWA 53327 (Superseded by PWA 56336)	Sling		
PWA 53340 (Superseded by PWA 56671)	Wrench		
PWA 53354	Driver	2J-F100-53-9	021 00, 404 00, 611 00
PWA 53360	Wrench	2J-F100-53-9	012 00, 701 00
PWA 53361 (Superseded by PWA 56689)	Adapter		
PWA 53362	Adapter	2J-F100-53-5	132 00
PWA 53363	Puller	2J-F100-53-11	702 00
PWA 53370	Fixture	2J-F100-53-7	432 00, 614 00
PWA 53373	Clamp	2J-F100-53-9	603 00
PWA 53399	Adapter	2J-F100-53-7	372 00
PWA 53403	Adapter	2J-F100-53-7	472 00
PWA 53410	Plug	2J-F100-53-11	301 00
PWA 53424	Plug	2J-F100-53-7	372 00
PWA 53434	Fixture	2J-F100-53-5	525 00, 526 00
PWA 53435	Fixture	2J-F100-53-5	525 00, 526 00
PWA 53645	Pulley	2J-F100-53-6	706 00
PWA 53670	Adapter	2J-F100-53-5	429 00
PWA 53687	Adapter	2J-F100-53-7	707 00
PWA 53704	Wrench	2J-F100-53-10	021 00, 603 00
PWA 53713	Adapter	2J-F100-53-11	301 00
PWA 53738	Fixture	2J-F100-53-7	339 00

Master Numerical List of Support Equipment (continued)

Part Number	Nomenclature	Technical Order Number	WP/SWP No.
PWA 53757	Adapter	2J-F100-53-5	727 00
PWA 53758	Plug	2J-F100-53-7	372 00
PWA 53759	Adapter	2J-F100-53-7	372 00
PWA 53767 (Supersedes PWA 52768)	Plug	2J-F100-53-5	429 00
PWA 53769	Die	2J-F100-53-5	501 00
PWA 53770	Die	2J-F100-53-5	501 00
PWA 53778	Pliers	2J-F100-53-1 2J-F100-53-5 2J-F100-53-8 2J-F100-53-9	021 00 709 00, 714 00, 720 00 011 00, 701 00 606 00
PWA 53780	Plug	2J-F100-53-5	429 00
PWA 53789	Adapter	2J-F100-53-9	702 00
PWA 53801	Die	2J-F100-53-5	501 00, 504 00
PWA 53825	Support	2J-F100-53-11	703 00, 703 01
PWA 53852	Puller	2J-F100-53-4 2J-F100-53-5	032 00 106 00, 110 00
PWA 53858 (Supersedes PWA 50630)	Wrench	2J-F100-53-7	014 00, 701 00
PWA 53859 (Supersedes PWA 50631)	Adapter	2J-F100-53-7	014 00, 701 00
PWA 53860	Puller	2J-F100-53-10	023 00
PWA 53875	Pusher	2J-F100-53-7	701 00
PWA 53876	Puller	2J-F100-53-9	031 00
PWA 53877	Puller	2J-F100-53-7	625 00
PWA 53878 (Superseded by PWA 57483)	Puller		
PWA 53879 (Supersedes PWA 51061)	Puller	2J-F100-53-9	614 00
PWA 53889	Pusher	2J-F100-53-3 2J-F100-53-6	036 00 702 00
PWA 53931	Die	2J-F100-53-5	501 00
PWA 53934	Die	2J-F100-53-5	501 00
PWA 53936	Die	2J-F100-53-5	501 00
PWA 53937	Die	2J-F100-53-5	501 00
PWA 55134	Plug	2J-F100-53-7	706 00, 708 00

Master Numerical List of Support Equipment (continued)

Part Number	Nomenclature	Technical Order Number	WP/SWP No.
PWA 55136	Drill Jig	2J-F100-53-7	432 00
PWA 55137	Fixture	2J-F100-53-7	432 00
PWA 55147	Drift	2J-F100-53-7	432 00
PWA 55191 (Superseded by PWA 55814)	Puller		
PWA 55226	Gage	2J-F100-53-7	338 00
PWA 55227	Riveter	2J-F100-53-5	525 00, 526 00
PWA 55228	Drift	2J-F100-53-7	604 00
PWA 55260	Puller	2J-F100-53-7	434 00
PWA 55300	Puller	2J-F100-53-7	472 00
PWA 55303	Protector	2J-F100-53-7	201 00, 472 00
PWA 55308	Controller	2J-F100-53-7	434 00, 472 00
PWA 55320	Fixture	2J-F100-53-5 2J-F100-53-6 2J-F100-53-7	720 00, 725 00 427 00 498 00
PWA 55325	Extractor	2J-F100-53-3 2J-F100-53-5	042 00 111 00, 119 00, 127 00
PWA 55380	Pump	2J-F100-53-5 2J-F100-53-6 2J-F100-53-7 2J-F100-53-8 2J-F100-53-9 2J-F100-53-11	131 00, 132 00, 134 00, 703 00, 704 00, 705 00 012 00, 427 00, 702 00 011 00, 014 00, 024 00, 026 00, 033 00, 033 01, 498 00, 619 00, 619 01, 625 00, 701 00, 706 00 011 00, 701 00 012 00, 021 00, 031 00, 611 00, 614 00 014 01, 402 00, 703 01
PWA 55419	Adapter	2J-F100-53-11	707 00
PWA 55422	Fixture	2J-F100-53-4 2J-F100-53-5	008 00 730 00
PWA 55445	Adapter	2J-F100-53-8	318 00
PWA 55446	Adapter	2J-F100-53-8	318 00
PWA 55450	Fixture	2J-F100-53-5	722 00
PWA 55451	Drift	2J-F100-53-10	023 00
PWA 55452	Drift	2J-F100-53-10	601 00
PWA 55453	Drift	2J-F100-53-10	601 00
PWA 55454	Pusher	2J-F100-53-10	601 00
PWA 55456	Tester	2J-F100-53-6 2J-F100-53-8 2J-F100-53-9	415 00 318 00 615 00, 616 00
PWA 55457	Drift	2J-F100-53-10	023 00, 601 00
PWA 55460	Support	2J-F100-53-10	011 00, 021 00, 603 00
PWA 55535	Puller	2J-F100-53-11	014 00, 014 01

Master Numerical List of Support Equipment (continued)

Part Number	Nomenclature	Technical Order Number	WP/SWP No.
PWA 55536	Drift	2J-F100-53-11	702 00
PWA 55555 (Superseded by PWA 56649)	Crimper		
PWA 55568	Fixture	2J-F100-53-7	347 00
PWA 55594	Holder	2J-F100-53-7	706 00
PWA 55642	Gage	2J-F100-53-7	335 00, 398 00
PWA 55644	Gage	2J-F100-53-7	335 00, 398 00
PWA 55662	Fixture	2J-F100-53-7	498 00
PWA 55669	Gage	2J-F100-53-5 2J-F100-53-7	503 00 335 00, 398 00, 498 00
PWA 55671	Drill guide	2J-F100-53-10	428 00
PWA 55712	Indicator	2J-F100-53-11	707 00
PWA 55716	Weight	2J-F100-53-9	601 00
PWA 55760 (Superseded by PWA 57484)	Fixture		
PWA 55814 (Supersedes PWA 55191)	Puller	2J-F100-53-4 2J-F100-53-5	008 00 117 00, 119 00
PWA 55823	Puller	2J-F100-53-11	703 00, 703 01
PWA 55824 (Supersedes PWA 50407)	Wrench	2J-F100-53-3 2J-F100-53-11	009 00 014 00, 014 01, 602 00, 703 00, 703 01
PWA 55867	Wrench	2J-F100-53-10	023 00, 601 00
PWA 55915 (Superseded by PWA 56558)	Pusher		

Master Numerical List of Support Equipment (continued)

Part Number	Nomenclature	Technical Order Number	WP/SWP No.
PWA 55938-2 (Detail of PWA 57503)	Rod	2J-F100-53-5	723 00
PWA 55994	Rivet Set	2J-F100-53-8	405 00
PWA 56015	Data Collection Unit	2J-F100-11-2	660 00
PWA 56016 (Superseded by PWA 56084)	EAU		
PWA 56018 or Electronic turning tool	Rotator	2J-F100-53-5	023 00, 024 00, 025 00, 026 00, 027 00
PWA 56032	Cable	2J-F100-11-2	650 00, 652 00
PWA 56033	Cable	2J-F100-11-2	650 00
PWA 56038	Pressure Test Set	2J-F100-11-2	661 00, 662 00, 663 00
PWA 56042	Cable Test Set Assembly	2J-F100-53-4	019 00
PWA 56058	Guide Tube	2J-F100-53-5	026 00
PWA 56068	SYS Interface	2J-F100-53-4	007 00, 023 00
PWA 56075	Borescope	2J-F100-53-4 2J-F100-53-5 2J-F100-53-8	008 00, 104 00 021 00, 021 01, 022 00, 023 00, 024 00, 025 00, 026 00, 027 00, 730 00 702 00

Master Numerical List of Support Equipment (continued)

Part Number	Nomenclature	Technical Order Number	WP/SWP No.
PWA 56084	EAU	2J-F100-11-2 2J-F100-53-4	650 00, 652 00, 675 00 007 00, 023 00
PWA 56091	Software	2J-F100-11-2	612 00, 651 00, 653 00, 654 00, 655 00, 656 00
PWA 56102	Transducer	2J-F100-11-2	612 00, 651 00, 653 00, 654 00, 655 00, 656 00, 660 00, 675 00
PWA 56103	Guide Tube	2J-F100-53-5	027 00
PWA 56114	Interface Assembly	2J-F100-11-2	612 00, 651 00, 653 00, 654 00, 655 00, 656 00, 657 00, 658 00, 659 00
PWA 56309	Puller	2J-F100-53-7	011 00
PWA 56317 (Supersedes PWA 50510 and PWA 50511)	Puller	2J-F100-53-11	011 00
PWA 56320 (Superseded by PWA 56629)	Crimper		
PWA 56322 (Superseded by PWA 57886)	Heater		

Master Numerical List of Support Equipment (continued)

Part Number	Nomenclature	Technical Order Number	WP/SWP No.
PWA 56323 (Superseded by PWA 56582)	Heater		
PWA 56324 (Supersedes PWA 52464)	Heater	2J-F100-53-7	609 00, 614 00, 701 00
PWA 56325	Heater	2J-F100-53-7	701 00, 706 00
PWA 56326 (Supersedes PWA 51765)	Heater	2J-F100-53-7 2J-F100-53-9	623 00, 701 00 603 00, 611 00
PWA 56336 (Supersedes PWA 37115 and PWA 53327)	Sling	2J-F100-53-5	101 00, 106 00, 108 00, 131 00, 132 00, 133 00, 134 00, 136 00, 701 00, 702 00, 703 00, 704 00, 705 00, 727 00
		2J-F100-53-6	004 00, 005 00, 011 00, 012 00, 013 00, 014 00, 701 00, 702 00, 703 00, 704 00
		2J-F100-53-7	011 00, 012 00, 013 00, 014 00, 033 01, 619 01, 701 00, 705 00, 706 00, 709 00
		2J-F100-53-8 2J-F100-53-9 2J-F100-53-10	004 00, 005 00, 011 00 004 00, 005 00 004 00, 005 00
PWA 56337 (Supersedes PWA 50301)	Sling	2J-F100-53-5	004 00, 005 00, 008 00, 043 00, 045 00
PWA 56338 (Supersedes PWA 22563 and PWA 50775)	Stand	2J-F100-53-5	101 00, 107 00, 134 00, 136 00, 204 00, 604 00
		2J-F100-53-6	004 00, 701 00, 702 00, 706 00
		2J-F100-53-7	004 00, 012 00, 013 00, 622 00, 623 00, 625 00, 705 00, 709 00
		2J-F100-53-9 2J-F100-53-10	011 00, 611 00, 613 00 004 00, 011 00, 701 00
PWA 56502 (Supersedes PWA 52760)	Base	2J-F100-53-11	013 00, 701 00
PWA 56503	Puller	2J-F100-53-11	014 00
PWA 56505	Puller	2J-F100-53-9	031 00
PWA 56506 (Supersedes PWA 50601)	Pusher	2J-F100-53-7	603 00
PWA 56507 (Supersedes PWA 50613)	Pusher	2J-F100-53-7	608 00

Master Numerical List of Support Equipment (continued)

Part Number	Nomenclature	Technical Order Number	WP/SWP No.
PWA 56509 (Supersedes PWA 52769)	Adapter, Torque	2J-F100-53-5	114 00, 119 00, 708 00, 720 00
PWA 56510 (Supersedes PWA 51955)	Pusher	2J-F100-53-10	023 00, 601 00
PWA 56511 (Supersedes PWA 51840)	Puller	2J-F100-53-5	203 00
PWA 56556	Pusher/Puller	2J-F100-53-11	014 01, 703 01
PWA 56558 (Supersedes PWA 55915)	Pusher	2J-F100-53-6 2J-F100-53-10	407 00 424 00
PWA 56566	Adapter	2J-F100-53-5	112 00, 119 00, 715 00, 720 00
PWA 56570 (Supersedes PWA 51762)	Installer	2J-F100-53-10	602 00
PWA 56572 (Supersedes PWA 10001)	Adapter	2J-F100-53-5	004 00, 042 00
PWA 56574	Fixture	2J-F100-53-7	611 00
PWA 56579 (Supersedes PWA 57071)	Fixture	2J-F100-53-5 2J-F100-53-11	106 00, 205 00, 605 00, 721 00 004 00, 005 00, 011 00, 707 00
PWA 56582 (Supersedes PWA 56323 and PWA 52859)	Heater	2J-F100-53-6	603 00
PWA 56583	Puller	2J-F100-53-9	026 00
PWA 56585 (Superseded by PWA 56688)	Adapter	2J-F100-53-7	014 00, 701 00
PWA 56586	Torque Adapter	2J-F100-53-7	014 00, 701 00
PWA 56593	Stand	2J-F100-53-7	029 00, 614 00
PWA 56595 (Supersedes PWA 22726)	Puller	2J-F100-53-6	012 00
PWA 56596	Ring	2J-F100-53-7	339 00
PWA 56601	Pusher	2J-F100-53-9	601 00
PWA 56603 (Superseded by PWA 61685)	Control, Heater		
PWA 56606	Fixture	2J-F100-53-4	008 00

Master Numerical List of Support Equipment (continued)

Part Number	Nomenclature	Technical Order Number	WP/SWP No.
PWA 56629 (Supersedes PWA 56320)	Compressor	2J-F100-53-5 2J-F100-53-7 2J-F100-53-9	709 00, 710 00, 720 00 614 00 702 00
PWA 56637 (Supersedes PWA 52578)	Sling	2J-F100-53-5	107 00, 204 00, 604 00, 707 00
PWA 56639	Adapter	2J-F100-53-4 2J-F100-53-10	040 00, 043 00, 045 00 011 00, 701 00, 702 00, 703 00
PWA 56640	Gage	2J-F100-53-10	334 00
PWA 56646 (Supersedes PWA 8151)	Adapter	2J-F100-53-7	708 00
PWA 56649 (Supersedes PWA 55555)	Crimper	2J-F100-53-6	410 00
PWA 56651 (Supersedes PWA 52748)	Adapter	2J-F100-53-5	430 00, 432 00
PWA 56652 (Supersedes PWA 51376)	Adapter	2J-F100-53-5 2J-F100-53-9	432 00 702 00
PWA 56653 (Supersedes PWA 51751)	Pusher	2J-F100-53-10	601 00
PWA 56654 (Supersedes PWA 51374)	Adapter	2J-F100-53-5 2J-F100-53-9	430 00, 431 00 702 00
PWA 56662	Puller	2J-F100-53-5 2J-F100-53-6	503 00 427 00
PWA 56671 (Supersedes PWA 51720 and PWA 53340)	Adapter	2J-F100-53-9	011 00, 611 00
PWA 56675 (Supersedes PWA 52686)	Adapter	2J-F100-53-5	113 00, 119 00, 710 00, 720 00
PWA 56676 (Supersedes PWA 52667)	Adapter	2J-F100-53-5	114 00, 119 00, 708 00, 720 00
PWA 56681	Adapter	2J-F100-53-5	041 00, 044 00, 045 00, 603 00
PWA 56682 (Supersedes PWA 51725)	Retainer	2J-F100-53-9	004 00, 005 00, 011 00, 611 00, 614 00, 703 00
PWA 56683	Puller	2J-F100-53-11	012 00

Master Numerical List of Support Equipment (continued)

Part Number	Nomenclature	Technical Order Number	WP/SWP No.
PWA 56685	Holder	2J-F100-53-11	014 00, 014 01, 703 00, 703 01
PWA 56687 (Supersedes PWA 50386)	Adapter	2J-F100-53-6	706 00
PWA 56688 (Supersedes PWA 56585)	Adapter	2J-F100-53-7	014 00, 701 00
PWA 56689 (Supersedes PWA 53361)	Adapter	2J-F100-53-9	012 00, 701 00
PWA 56699 (Supersedes PWA 57058)	Guide	2J-F100-53-11	028 00
PWA 56718 (Supersedes PWA 52411)	Adapter	2J-F100-53-5 2J-F100-53-10	101 00, 727 00 004 00, 005 00
PWA 56726 (Supersedes PWA 50419)	Guide	2J-F100-53-11	601 00
PWA 56731 (Supersedes PWA 50996)	Retainer	2J-F100-53-9	011 00
PWA 56751	Fixture	2J-F100-53-7	706 00
PWA 56784	Gage	2J-F100-53-10	324 00
PWA 57005 (Superseded by PWA 57403)	Heater		
PWA 57007 (Superseded by PWA 57404)	Heater		
PWA 57026 (Superseded by PWA 57405)	Heater		
PWA 57043	Drift	2J-F100-53-11	023 00, 603 00
PWA 57045	Drift	2J-F100-53-11	702 00
PWA 57046	Puller	2J-F100-53-11	014 00, 014 01
PWA 57047	Drift	2J-F100-53-11	703 00
PWA 57048	Wrench	2J-F100-53-11	012 00, 703 00, 703 01
PWA 57049	Adapter	2J-F100-53-11	012 00, 014 00, 703 00, 703 01
PWA 57050	Puller	2J-F100-53-11	012 00, 023 00, 703 00
PWA 57051	Holder	2J-F100-53-11	704 00
PWA 57052	Drift	2J-F100-53-11	606 00
PWA 57053	Base	2J-F100-53-11	606 00
PWA 57054	Pliers	2J-F100-53-11	606 00
PWA 57056	Wrench	2J-F100-53-11	028 00, 606 00
PWA 57057	Wrench	2J-F100-53-11	028 00, 606 00

Master Numerical List of Support Equipment (continued)

Part Number	Nomenclature	Technical Order Number	WP/SWP No.
PWA 57058 (Superseded by PWA 56699)	Drift		
PWA 57059	Base	2J-F100-53-11	028 00
PWA 57060	Puller	2J-F100-53-11	028 00
PWA 57061	Puller	2J-F100-53-11	028 00, 606 00
PWA 57063	Drift	2J-F100-53-11	028 00
PWA 57065	Puller	2J-F100-53-11	028 00
PWA 57066	Crimper	2J-F100-53-11	606 00
PWA 57067	Drift	2J-F100-53-11	606 00
PWA 57068	Drift	2J-F100-53-11	606 00
PWA 57070	Base	2J-F100-53-11	028 00
PWA 57071 (Superseded by PWA 56579)	Fixture		
PWA 57072	Fixture	2J-F100-53-11	028 00, 606 00
PWA 57073	Cover	2J-F100-53-11	705 00
PWA 57074	Cover	2J-F100-53-11	705 00
PWA 57088	Base	2J-F100-53-11	606 00
PWA 57089	Gage	2J-F100-53-8	303 00
PWA 57101	Plug	2J-F100-53-5 2J-F100-53-11	429 00 606 00, 705 00
PWA 57102	Adapter	2J-F100-53-4	101 00, 102 00, 104 00
PWA 57103	Adapter	2J-F100-53-4	101 00, 102 00, 104 00
PWA 57104	Pusher	2J-F100-53-11	702 00
PWA 57105	Retainer	2J-F100-53-11	014 00, 014 01
PWA 57108	Wrench	2J-F100-53-11	014 00, 014 01, 703 00, 703 01
PWA 57113 (Superseded by PWA 57410)	Heater		
PWA 57116	Gage	2J-F100-53-4 2J-F100-53-5 2J-F100-53-7	024 00 720 00, 729 00 706 00
PWA 57117	Puller	2J-F100-53-11	014 00, 014 01
PWA 57118	Drift	2J-F100-53-11	702 00
PWA 57120	Puller	2J-F100-53-11	028 00
PWA 57124	Puller	2J-F100-53-11	014 00, 014 01
PWA 57137	Pin	2J-F100-53-4	035 00, 102 00
PWA 57138	Gage	2J-F100-53-8	310 00
PWA 57141	Wrench	2J-F100-53-8	702 00
PWA 57142	Drift	2J-F100-53-11	606 00
PWA 57151 (Superseded by PWA 57495)	Heater		
PWA 57152	Cover	2J-F100-53-11	606 00

Master Numerical List of Support Equipment (continued)

Part Number	Nomenclature	Technical Order Number	WP/SWP No.
PWA 57176	Adapter	2J-F100-53-7	005 00
PWA 57182	Adapter	2J-F100-53-11	606 00, 705 00
PWA 57190	Fixture	2J-F100-53-7	701 00
PWA 57198	Anvil	2J-F100-53-5 2J-F100-53-6 2J-F100-53-7	503 00, 544 00 427 00 498 00
PWA 57199	Anvil	2J-F100-53-5 2J-F100-53-7	503 00, 544 00 498 00
PWA 57335	Drift	2J-F100-53-6	706 00
PWA 57362	Adapter	2J-F100-53-5	115 00, 119 00, 123 00, 711 01, 713 00
PWA 57368	Guide	2J-F100-53-11	703 00, 703 01
PWA 57369	Puller	2J-F100-53-11	014 01
PWA 57371 (Superseded by PWA 57796)	DEEC Vacuum Tester		
PWA 57378	Crimper	2J-F100-53-11	703 00, 703 01
PWA 57388	Adapter	2J-F100-53-11	011 00, 707 00
PWA 57393 (Supersedes PWA 50700)	Heater	2J-F100-53-3 2J-F100-53-7	004 00 605 00
PWA 57399 (Supersedes PWA 52756)	Heater	2J-F100-53-3 2J-F100-53-7	004 00 701 00
PWA 57400 (Supersedes PWA 52848)	Heater	2J-F100-53-3 2J-F100-53-7	004 00 605 00
PWA 57401 (Superseded by PWA 57885)	Heater	2J-F100-53-3 2J-F100-53-7	004 00 706 00
PWA 57403 (Supersedes PWA 57005)	Heater	2J-F100-53-3 2J-F100-53-8	004 00 701 00
PWA 57404 (Supersedes PWA 57007)	Heater	2J-F100-53-3 2J-F100-53-8	004 00 701 00

Master Numerical List of Support Equipment (continued)

Part Number	Nomenclature	Technical Order Number	WP/SWP No.
PWA 57405 (Supersedes PWA 57026)	Heater	2J-F100-53-3 2J-F100-53-8	004 00 701 00
PWA 57408	Adapter	2J-F100-53-6	012 00
PWA 57410 (Supersedes PWA 57113)	Heater	2J-F100-53-3 2J-F100-53-8	004 00 701 00
PWA 57412 (Supersedes PWA 27606)	Stand	2J-F100-53-5 2J-F100-53-11	106 00, 205 00 011 00, 703 00, 703 01, 707 00
PWA 57432	Fixture	2J-F100-53-7	611 00
PWA 57433	Compressor	2J-F100-53-7	601 00
PWA 57447 (Superseded by PWA 57811)	Puller		
PWA 57448 (Supersedes PWA 51409)	Tester	2J-F100-11-2	667 00
PWA 57467	Puller	2J-F100-53-5 2J-F100-53-7	503 00, 544 00 498 00
PWA 57483 (Supersedes PWA 53878)	Puller	2J-F100-53-9	012 00
PWA 57484 (Supersedes PWA 55760)	Fixture	2J-F100-53-8	409 00
PWA 57489	Fixture	2J-F100-53-4	O34 00, 036 00, 037 00
PWA 57490	Support	2J-F100-53-7	025 00
PWA 57495 (Supersedes PWA 57151)	Heater	2J-F100-53-3 2J-F100-53-7	004 00 706 00

Master Numerical List of Support Equipment (continued)

Part Number	Nomenclature	Technical Order Number	WP/SWP No.
PWA 57503 (Reidentified to PWA 57765)	Stand		
PWA 57504 (Superseded by PWA 57895)	Adapter		
PWA 57506	Guide	2J-F100-53-7	011 00, 033 00, 619 00, 619 01, 706 00
PWA 57516	Fixture	2J-F100-53-7	035 00, 622 00
PWA 57525 (Detail of PWA 57653)	Puller	2J-F100-53-9	022 00
PWA 57528 (Detail of PWA 57653)	Tool Assembly	2J-F100-53-9	022 00, 603 00
PWA 57530	Puller	2J-F100-53-5 2J-F100-53-7 2J-F100-53-8	132 00, 704 00 011 00, 706 00 011 00
PWA 57531	Fixture	2J-F100-53-4	101 00
PWA 57537	Fixture	2J-F100-53-7	035 00, 622 00
PWA 57538	Rotator	2J-F100-53-5 2J-F100-53-7	704 00 011 00, 701 00, 706 00
PWA 57540	Fixture	2J-F100-53-7	621 00
PWA 57542	Adapter	2J-F100-53-7	029 00, 614 00
PWA 57544	Weight Set	2J-F100-53-6	706 00
PWA 57545	Puller	2J-F100-53-6	012 00
PWA 57552 (Detail of PWA 57653 and PWA 57535 Kit)	Pusher/Puller	2J-F100-53-7	034 00, 621 00
PWA 57600 (Detail of PWA 57653)	Puller	2J-F100-53-9	021 00, 022 00, 024 00
PWA 57601	Trunnion	2J-F100-53-7	014 00, 701 00
PWA 57603	Fixture	2J-F100-53-7	035 00
PWA 57604	Fixture	2J-F100-53-7	035 00, 622 00
PWA 57608	Adapter	2J-F100-53-7	035 00, 622 00
PWA 57609	Adapter	2J-F100-53-5	102 00, 014 00, 724 00
PWA 57610	Fixture	2J-F100-53-9	607 00
PWA 57611	Drift	2J-F100-53-9	701 00

Master Numerical List of Support Equipment (continued)

Part Number	Nomenclature	Technical Order Number	WP/SWP No.
PWA 57614 (Reidentified to PWA 57803)	Retainer		
PWA 57615	Retainer	2J-F100-53-5 2J-F100-53-6	136 00 004 00, 011 00, 701 00, 702 00, 706 00
PWA 57623	Adapter	2J-F100-53-5 2J-F100-53-7	134 00, 703 00 012 00, 013 00, 705 00, 709 00
PWA 57626	Pusher/Puller	2J-F100-53-5	109 00, 131 00, 133 00, 703 00, 705 00
PWA 57632	Heater	2J-F100-53-6	701 00
PWA 57635	Adapter	2J-F100-53-5 2J-F100-53-7	133 00, 134 00, 702 00 012 00, 705 00
PWA 57637 (Superseded by PWA 57907)	Puller		
PWA 57642	Eye	2J-F100-53-6	013 00, 701 00
PWA 57645 (Detail of PWA 57658)	Puller	2J-F100-53-9	030 00
PWA 57646	Weight	2J-F100-53-8	702 00
PWA 57647	Fixture	2J-F100-53-7	602 00
PWA 57648 (Superseded by PWA 57819)	Retainer		
PWA 57649 (Details of PWA 57806)	Adapter		
PWA 57650 (Details of PWA 57906)	Adapter		
PWA 57653 (Reidentified to PWA 57810)	Tool Set		
PWA 57654	Weight Set	2J-F100-53-9	613 00
PWA 57655 (Detail of PWA 57658)	Fixture	2J-F100-53-9	030 00, 610 00
PWA 57657	Adapter	2J-F100-53-7	702 00
PWA 57658	Tool Set	2J-F100-53-9	030 00, 610 00

Master Numerical List of Support Equipment (continued)

Part Number	Nomenclature	Technical Order Number	WP/SWP No.
PWA 57661	Heater	2J-F100-53-5	703 00
PWA 57664	Equipment Set	2J-F100-53-5 2J-F100-53-7	132 00, 704 00 011 00, 706 00
PWA 57667	Fixture	2J-F100-53-9	612 00
PWA 57668 (Superseded by PWA 57764)	Fixture		
PWA 57669	Fixture	2J-F100-53-6	602 00
PWA 57672	Fixture	2J-F100-53-9	314 00
PWA 57676	Adapter	2J-F100-53-6	415 00
PWA 57677	Adapter	2J-F100-53-6	415 00
PWA 57678	Adapter	2J-F100-53-6	415 00
PWA 57683	Heater	2J-F100-53-6	701 00
PWA 57697	Fixture	2J-F100-53-7	623 00
PWA 57698	Equipment Set	2J-F100-53-7	623 00
PWA 57699	Balance Fixture	2J-F100-53-6	706 00
PWA 57700	Balance Fixture	2J-F100-53-6	706 00
PWA 57701	Pin	2J-F100-53-4 2J-F100-53-10	043 00 021 00, 603 00, 702 00
PWA 57704 (Reidentified to PWA 57818)	Adapter		
PWA 57707	Holder	2J-F100-53-7	622 00
PWA 57708 (Superseded by PWA 57839)	Adapter		
PWA 57709 (Superseded by PWA 57824)	Retainer		
PWA 57710	Base	2J-F100-53-7	623 00, 625 00
PWA 57711	Fixture	2J-F100-53-9	404 00
PWA 57712	Adapter	2J-F100-53-5 2J-F100-53-7 2J-F100-53-8	132 00, 704 00 011 00, 706 00 004 00, 005 00, 701 00, 702 00
PWA 57714	Adapter	2J-F100-53-7	029 00, 614 00
PWA 57715	Fixture	2J-F100-53-9	611 00
PWA 57717 (Superseded by PWA 57879)	Adapter		
PWA 57718	Adapter Set	2J-F100-53-5	131 00, 703 00, 705 00
PWA 57719	Plug Set	2J-F100-53-9	702 00
PWA 57722	Build Stand	2J-F100-53-7	013 00, 014 00, 622 00, 625 00, 709 00
PWA 57723 (Superseded by PWA 57941)	Puller		

Master Numerical List of Support Equipment (continued)

Part Number	Nomenclature	Technical Order Number	WP/SWP No.
PWA 57724	Fixture	2J-F100-53-7	030 00
PWA 57726	Guide	2J-F100-53-7	014 00, 701 00
PWA 57728	Weight	2J-F100-53-7	624 00
PWA 57732	Adapter	2J-F100-53-6	702 00
PWA 57734	Adapter	2J-F100-53-7	029 00, 370 00, 614 00
PWA 57737	Equipment Set	2J-F100-53-7	623 00, 625 00
PWA 57738	Fixture	2J-F100-53-9	611 00
PWA 57739	Fixture	2J-F100-53-7	014 00, 701 00
PWA 57740	Adapter	2J-F100-53-5	107 00, 204 00, 604 00
PWA 57742 (Superseded by PWA 57799)	Fixture		
PWA 57744	Wrench	2J-F100-53-4	041 00
PWA 57752	Adapter	2J-F100-53-5 2J-F100-53-11	106 00, 205 00, 605 00 011 00
PWA 57753 (Superseded by PWA 57812)	Puller		
PWA 57755	Fixture	2J-F100-53-9	606 00
PWA 57757	Adapter	2J-F100-53-9	615 00
PWA 57758	Adapter	2J-F100-53-9	616 00
PWA 57760	Adapter	2J-F100-53-9	025 00, 606 00
PWA 57764 (Supersedes PWA 57668)	Balance Fixture	2J-F100-53-8	702 00
PWA 57765 (Superseded by PWA 57830)	Stand		
PWA 57766 (Detail of PWA 57833)	Adapter	2J-F100-53-5 2J-F100-53-9	131 00, 705 00 004 00, 005 00, 011 00, 703 00
PWA 57767 (Superseded by PWA 57833)	Tool Set		
PWA 57776	Fixture	2J-F100-53-9	404 00
PWA 57778	Set Master	2J-F100-53-9	404 00
PWA 57780 (Supersedes PWA 50975 and PWA 50981)	Pusher/Puller	2J-F100-53-7	011 00, 623 00, 706 00
PWA 57781	Adapter	2J-F100-53-7	619 00
PWA 57782 (Detail of PWA 57790)	Pusher/Puller	2J-F100-53-7	034 00, 621 00

Master Numerical List of Support Equipment (continued)

Part Number	Nomenclature	Technical Order Number	WP/SWP No.
PWA 57789	Set, Checking	2J-F100-53-9	313 00
PWA 57790	Pusher/Puller	2J-F100-53-6 2J-F100-53-7 2J-F100-53-10	021 00, 603 00 028 00, 034 00, 609 00, 621 00 023 00, 601 00
PWA 57796 (Supersedes PWA 57371)	Vacuum Tester	2J-F100-53-4 2J-F100-53-11	007 00, 015 00, 018 00 675 00
PWA 57797 (Superseded by PWA 57880)	Fixture		
PWA 57798 (Superseded by PWA 57880)	Retainer		
PWA 57799 (Supersedes PWA 57742)	Fixture	2J-F100-53-7	613 00
PWA 57800	Protector	2J-F100-53-9	012 00, 701 00
PWA 57801 (Superseded by PWA 57907)	Puller		
PWA 57803	Retainer	2J-F100-53-5 2J-F100-53-6	044 00, 108 00, 133 00 004 00, 011 00, 012 00, 013 00, 014 00, 701 00, 702 00, 703 00, 704 00
PWA 57805	Heater	2J-F100-53-6	701 00
PWA 57806 (Supersedes PWA 57649)	Adapter Set	2J-F100-53-5 2J-F100-53-6 2J-F100-53-7	103 00, 104 00, 132 00, 704 00, 722 00, 723 00 012 00, 702 00 011 00, 014 00, 701 00, 706 00
PWA 57807 (Superseded by PWA 57906)	Adapter Set		
PWA 57810 (Supersedes PWA 57653)	Tool Set	2J-F100-53-9	021 00, 022 00, 023 00, 603 00, 605 00, 611 00
PWA 57811 (Supersedes PWA 57447)	Puller	2J-F100-53-9	021 00
PWA 57812 (Supersedes PWA 57753)	Puller	2J-F100-53-9	611 00
PWA 57817	Base	2J-F100-53-10	408 00
PWA 57818	Adapter	2J-F100-53-9	011 00, 611 00, 614 00

Master Numerical List of Support Equipment (continued)

Part Number	Nomenclature	Technical Order Number	WP/SWP No.
PWA 57819 (Detail of PWA 57833)	Retainer	2J-F100-53-5 2J-F100-53-9	131 00, 705 00 011 00, 611 00, 614 00, 703 00
PWA 57824 (Detail of PWA 57833)	Retainer	2J-F100-53-5 2J-F100-53-9	130 00 004 00, 701 00, 702 00
PWA 57827	Fixture	2J-F100-53-7	602 00
PWA 57829	Puller	2J-F100-53-9	025 00
PWA 57830 (Supersedes PWA 57765)	Stand	2J-F100-53-7 2J-F100-53-8	033 00, 033 01, 619 00, 61901 004 00, 005 00, 011 00, 601 00, 701 00
PWA 57831	Fixture	2J-F100-53-10	408 00
PWA 57832	Inspection Gage	2J-F100-53-7	353 00
PWA 57833 (Supersedes PWA 57767)	Tool Set	2J-F100-53-5 2J-F100-53-9	130 00, 131 00, 705 00 004 00, 005 00, 011 00, 611 00, 614 00, 701 00, 702 00, 703 00
PWA 57837	Stand	2J-F100-53-7	035 00, 622 00
PWA 57838	Adapter	2J-F100-53-7	035 00, 630 00
PWA 57839 (Supersedes PWA 51719 and PWA 57708)	Adapter	2J-F100-53-9	005 00, 011 00, 611 00, 613 00
PWA 57851	Adapter	2J-F100-53-9	616 00
PWA 57853	Puller	2J-F100-53-6	012 00
PWA 57855	Fixture	2J-F100-53-9	314 00
PWA 57856	Inspection Gage	2J-F100-53-7	338 00
PWA 57860	Holder	2J-F100-53-9	701 00
PWA 57866	Fixture, Constraint Front	2J-F100-53-9	312 00
PWA 57867	Gage, Master Front	2J-F100-53-9	312 00
PWA 57868	Gage	2J-F100-53-9	312 00
PWA 57869	Gage	2J-F100-53-9	312 00
PWA 57870	Fixture, Constraint Rear	2J-F100-53-9	312 00
PWA 57871	Gage, Master Rear	2J-F100-53-9	312 00
PWA 57872	Gage	2J-F100-53-9	312 00
PWA 57873	Gage	2J-F100-53-9	312 00
PWA 57874	Fixture, Constraint Front	2J-F100-53-9	322 00
PWA 57875	Gage, Master Front	2J-F100-53-9	322 00
PWA 57876	Gage	2J-F100-53-9	322 00

Master Numerical List of Support Equipment (continued)

Part Number	Nomenclature	Technical Order Number	WP/SWP No.
PWA 57877	Gage	2J-F100-53-9	322 00
PWA 57879 (Supersedes PWA 57717)	Pusher/Puller	2J-F100-53-9	012 00, 701 00
PWA 57880 (Supersedes PWA 57797 and PWA 57798)	Set, Fan Washer	2J-F100-53-5	104 00, 722 00
PWA 57885 (Supersedes PWA 52890 and PWA 57401)	Heater	2J-F100-53-7	706 00
PWA 57886 (Supersedes PWA 51777 and PWA 56322)	Heater	2J-F100-53-9	603 00, 611 00
PWA 57888	Fixture, Constraint Front	2J-F100-53-9	320 00
PWA 57889	Gage, Master Front	2J-F100-53-9	320 00
PWA 57890	Gage	2J-F100-53-9	320 00
PWA 57891	Gage, Master Rear	2J-F100-53-9	320 00
PWA 57892	Gage	2J-F100-53-9	320 00
PWA 57893	Fixture, Constraint Rear	2J-F100-53-9	320 00
PWA 57894	Pusher	2J-F100-53-9	610 00
PWA 57895 (Detail of PWA 57830)	Adapter		
PWA 57896	Pusher	2J-F100-53-7	431 00
PWA 57897	Set, Push/Pull	2J-F100-53-7	465 00
PWA 57899	Pusher	2J-F100-53-7	435 00
PWA 57900	Pusher	2J-F100-53-7	435 00
PWA 57902	Adapter	2J-F100-53-5	129 00, 706 00
PWA 57904	Pusher/Puller	2J-F100-53-7	449 00
PWA 57906 (Supersedes PWA 57807)	Adapter Set	2J-F100-53-5 2J-F100-53-6	103 00, 104 00, 722 00, 723 00 012 00, 702 00
PWA 57907 (Supersedes PWA 57637 and PWA 57801)	Puller Set	2J-F100-53-5 2J-F100-53-6	103 00, 723 00 013 00
PWA 57908	Support	2J-F100-53-8 2J-F100-53-9	011 00, 701 00 022 00, 603 00
PWA 57909	Fixture	2J-F10053-7	621 00
PWA 57910	Fixture	2J-F100-53-7	701 00
PWA 57916	Puller	2J-F100-53-7	033 00, 033 01
PWA 57918	Fixture	2J-F100-53-7	033 01, 619 01, 706 00
PWA 57919	Fixture	2J-F100-53-7	011 00, 033 01, 706 00
PWA 57920	Fixture	2J-F100-53-5 2J-F100-53-7 2J-F100-53-8	132 00, 704 00 011 00, 706 00 004 00, 005 00, 701 00, 702 00

Master Numerical List of Support Equipment (continued)

Part Number	Nomenclature	Technical Order Number	WP/SWP No.
PWA 57921	Puller	2J-F100-53-7	011 00
PWA 57933	Retainer	2J-F100-53-7	012 00, 705 00
PWA 57937 (Supersedes PWA 51298)	Fixture	2J-F100-53-7	013 00, 035,00, 622 00, 623 00, 625 00, 709 00
PWA 57938 (Supersedes PWA 51371)	Fixture	2J-F100-53-7	014 00, 035 00, 622 00, 623 00, 625 00, 701 00
PWA 57941 (Supersedes PWA 57723)	Puller	2J-F100-53-6	706 00
PWA 61685 (Supersedes PWA 25672 and PWA 56603)	Control	2J-F100-53-5 2J-F100-53-6 2J-F100-53-7 2J-F100-53-8 2J-F100-53-9	703 00, 704 00 603 00, 701 00 605 00, 609 00, 614 00, 623 00, 701 00, 706 00 701 00 603 00, 611 00
PWA 61693	Holder	2J-F100-53-5	102 00, 015 00, 724 00
PWA 61694	Wrench	2J-F100-53-5	102 00, 015 00, 724 00
PWA 62502	Adapter Kit	2J-F100-11-2	664 00
PWA 6507	Flowmeter	2J-F100-53-6 2J-F100-53-7 2J-F100-53-9	602 00 602 00, 607 00, 611 00, 613 00, 618 00 607 00
PWA 6580	Sling	2J-F100-53-5 2J-F100-53-6 2J-F100-53-7 2J-F100-53-8 2J-F100-53-9	008 00 706 00 011 00 702 00 011 00, 012 00, 603 00, 611 00, 613 00, 614 00, 701 00, 703 00
PWA 6660	Base	2J-F100-53-11	026 00
PWA 70108	Gage	2J-F100-53-11	402 00
PWA 70109	Puller	2J-F100-53-6 2J-F100-53-11	427 00 402 00

Master Numerical List of Support Equipment (Continued)

Part Number	Nomenclature	Technical Order Number	WP/SWP No.
PWA 70110	Drift	2J-F100-53-11	402 00
PWA 70138	Die	2J-F100-53-5	504 00
PWA 70139	Fixture	2J-F100-53-5	504 00
PWA 70449	Pedestal	2J-F100-53-6	410 00
		2J-F100-53-7	402 00, 405 00, 421 00
		2J-F100-53-8	402 00
PWA 70579	Fixture	2J-F100-53-7	467 00
PWA 70580	Fixture	2J-F100-53-7	467 00
PWA 70591	Fixture	2J-F100-53-6	416 00
PWA 70592	Fixture	2J-F100-53-6	416 00
PWA 70593	Fixture	2J-F100-53-6	416 00
PWA 70594	Fixture	2J-F100-53-6	416 00
PWA 70595	Fixture	2J-F100-53-6	416 00
PWA 70596	Fixture	2J-F100-53-6	416 00

Master Numerical List of Support Equipment (continued)

Part Number	Nomenclature	Technical Order Number	WP/SWP No.
PWA 70616	Fixture	2J-F100-53-5	508 00
PWA 70617	Fixture	2J-F100-53-5	508 00
PWA 70765	EMI Band Tool Set	2J-F100-53-4	019 00
PWA 70804	Fixture	2J-F100-53-6	400 00, 410 00
PWA 71003	Fixture	2J-F100-53-7	469 00
PWA 71004	Mask	2J-F100-53-7	469 00
PWA 71005	Mask	2J-F100-53-7	469 00
PWA 71006	Fixture	2J-F100-53-7	430 00
PWA 71007	Gage	2J-F100-53-7	430 00
PWA 71008	Fixture	2J-F100-53-7	430 00
PWA 71009	Fixture	2J-F100-53-7	430 00
PWA 71011	Mask	2J-F100-53-7	430 00
PWA 71012	Gage	2J-F100-53-7	430 00
PWA 71013	Gage	2J-F100-53-7	430 00
PWA 71014	Fixture	2J-F100-53-7	421 00
PWA 71015	Fixture	2J-F100-53-7	421 00
PWA 71016	Fixture	2J-F100-53-7	421 00
PWA 71017	Fixture	2J-F100-53-7	421 00
PWA 71018	Gage	2J-F100-53-7	421 00
PWA 71019	Gage	2J-F100-53-7	421 00
PWA 71020	Gage	2J-F100-53-7	421 00
PWA 71021	Fixture	2J-F100-53-7	421 00
PWA 71024	Gage	2J-F100-53-7	421 00
PWA 71025	Gage	2J-F100-53-7	421 00
PWA 71028	Drill Fixture	2J-F100-53-10	405 00
PWA 71030	Drill Fixture	2J-F100-53-10	407 00
PWA 71041	Fixture	2J-F100-53-7	421 00
PWA 71044	Holder	2J-F100-53-7	421 00
PWA 71054	Fixture	2J-F100-53-7	402 00
PWA 71055	Mask	2J-F100-53-7	402 00
PWA 71056	Fixture	2J-F100-53-7	402 00
PWA 71057	Holder	2J-F100-53-7	402 00
PWA 71058	Fixture	2J-F100-53-7	402 00

Master Numerical List of Support Equipment (continued)

Part Number	Nomenclature	Technical Order Number	WP/SWP No.
PWA 71059	Mask	2J-F100-53-7	402 00
PWA 71060	Holder	2J-F100-53-7	402 00
PWA 71087	Plate	2J-F100-53-7	421 00
PWA 71097	Mask	2J-F100-53-7	402 00
PWA 71098	Fixture	2J-F100-53-6	410 00
PWA 71099	Fixture	2J-F100-53-6	410 00
PWA 71100	Fixture	2J-F100-53-6	410 00
PWA 71101	Fixture	2J-F100-53-6	410 00
PWA 71102	Fixture	2J-F100-53-6	410 00
PWA 71103	Holder	2J-F100-53-6	410 00
PWA 71104	Mask	2J-F100-53-6	410 00
PWA 71105	Mask	2J-F100-53-6	410 00
PWA 71106	Fixture	2J-F100-53-6	410 00
PWA 71108	Set, Press. Test	2J-F100-53-6	410 00
PWA 71110	Masks	2J-F100-53-7	405 00
PWA 71111	Fixture	2J-F100-53-7	405 00
PWA 71115	Fixture	2J-F100-53-7	405 00
PWA 71116	Fixture	2J-F100-53-7	405 00
PWA 71117	Holder	2J-F100-53-7	405 00
PWA 71118	Mask Assembly	2J-F100-53-7	405 00
PWA 71120	Mask Assembly	2J-F100-53-7	405 00
PWA 71121	Fixture	2J-F100-53-7	405 00
PWA 71122	Fixture	2J-F100-53-7	405 00
PWA 71149	Gage	2J-F100-53-6	410 00
PWA 71150	Gage	2J-F100-53-6	410 00
PWA 71151	Mask	2J-F100-53-7	402 00
PWA 71195	Torque Adapter Set	2J-F100-53-7	458 00
PWA 71261	Fixture	2J-F100-53-6	418 00
PWA 71262	Fixture	2J-F100-53-6	418 00
PWA 71263	Fixture	2J-F100-53-6	418 00
PWA 71264	Gage	2J-F100-53-6	418 00
PWA 71265	Master	2J-F100-53-6	418 00
PWA 71266	Gage	2J-F100-53-6	418 00
PWA 71267	Master	2J-F100-53-6	418 00
PWA 71268	Fixture	2J-F100-53-6	418 00
PWA 71269	Gage	2J-F100-53-6	418 00
PWA 71270	Master	2J-F100-53-6	418 00
PWA 71271	Gage	2J-F100-53-6	418 00
PWA 71272	Master	2J-F100-53-6	418 00
PWA 71273	Adapter	2J-F100-53-6	418 00
PWA 71275	Fixture	2J-F100-53-6	418 00
PWA 71276	Fixture	2J-F100-53-6	418 00
PWA 71277	Fixture	2J-F100-53-6	418 00
PWA 71278	Fixture	2J-F100-53-6	418 00
PWA 71280	Fixture	2J-F100-53-6	418 00

Master Numerical List of Support Equipment (continued)

Part Number	Nomenclature	Technical Order Number	WP/SWP No.
PWA 71281	Fixture	2J-F100-53-6	416 00
PWA 71282	Fixture	2J-F100-53-6	416 00
PWA 71283	Fixture	2J-F100-53-6	416 00
PWA 71296	Adapter	2J-F100-53-6	416 00
PWA 71304	Mask Plug	2J-F100-53-7	305 00, 405 00
PWA 71305	Mask Plug	2J-F100-53-7	305 00, 405 00
PWA 71306	Mask	2J-F100-53-7	305 00, 405 00
PWA 71307	Holder	2J-F100-53-7	405 00
PWA 71322	Fixture	2J-F100-53-7	469 00
PWA 71331	Fixture, Scribe	2J-F100-53-10	414 00
PWA 71332	Fixture, Weld	2J-F100-53-10	414 00
PWA 71333	Fixture, Drill	2J-F100-53-10	414 00
PWA 71335	Fixture, Machining	2J-F100-53-10	414 00
PWA 71360	Fixture	2J-F100-53-7	432 00
PWA 71361	Fixture	2J-F100-53-7	432 00
PWA 71362	Fixture	2J-F100-53-7	432 00
PWA 71363	Fixture	2J-F100-53-7	432 00
PWA 71364	Mask	2J-F100-53-7	432 00
PWA 71365	Fixture	2J-F100-53-7	432 00
PWA 71366	Mask	2J-F100-53-7	432 00
PWA 71396	Fixture	2J-F100-53-7	434 00
PWA 71397	Fixture	2J-F100-53-7	472 00
PWA 71401	Fixture	2J-F100-53-7	472 00
PWA 71402	Fixture	2J-F100-53-7	472 00
PWA 71403	Fixture	2J-F100-53-7	472 00
PWA 71405	Plug	2J-F100-53-7	370 00
PWA 71408	Holder	2J-F100-53-7	201 00
PWA 71457	Fixture	2J-F100-53-6	013 00
PWA 71458	Fixture	2J-F100-53-6	013 00
PWA 71459	Fixture	2J-F100-53-6	011 00

Master Numerical List of Support Equipment (continued)

Part Number	Nomenclature	Technical Order Number	WP/SWP No.
PWA 71460	Fixture	2J-F100-53-7	035 00
PWA 71461	Fixture	2J-F100-53-7	035 00
PWA 71462	Fixture	2J-F100-53-7	035 00
PWA 71463	Fixture	2J-F100-53-7	035 00
PWA 71464	Fixture	2J-F100-53-7	035 00
PWA 71465	Fixture	2J-F100-53-7	035 00
PWA 71466	Fixture	2J-F100-53-7	035 00
PWA 71467	Fixture	2J-F100-53-7	035 00
PWA 71468	Fixture	2J-F100-53-7	035 00
PWA 71469	Fixture	2J-F100-53-7	035 00
PWA 71470	Fixure	2J-F100-53-7	028 00
PWA 71471	Fixture	2J-F100-53-7	034 00
PWA 71472	Fixture	2J-F100-53-7	034 00
PWA 71473	Fixture, Holding	2J-F100-53-8	011 00
PWA 71474	Fixture, Holding	2J-F100-53-8	011 00
PWA 71475	Fixture	2J-F100-53-9	022 00
PWA 71476	Fixture	2J-F100-53-9	023 00
PWA 71477	Fixture	2J-F100-53-7	434 00
PWA 71480	Pedestal	2J-F100-53-8	402 00
PWA 71481	Fixture	2J-F100-53-7	472 00
PWA 71482	Fixture	2J-F100-53-7	472 00
PWA 71483	Fixture	2J-F100-53-7	472 00
PWA 71484	Fixture	2J-F100-53-7	472 00
PWA 71485	Fixture	2J-F100-53-7	472 00
PWA 71488	Fixture	2J-F100-53-7	472 00
PWA 71493	Drill Fixture	2J-F100-53-6	424 00
PWA 71494	Drill Fixture	2J-F100-53-6	408 00
PWA 71523	Fixture	2J-F100-53-8	402 00
PWA 71524	Gage	2J-F100-53-8	402 00

Master Numerical List of Support Equipment (continued)

Part Number	Nomenclature	Technical Order Number	WP/SWP No.
PWA 71525	Master	2J-F100-53-8	402 00
PWA 71526	Adapter	2J-F100-53-8	402 00
PWA 71527	Mask	2J-F100-53-8	402 00
PWA 71528	Mask	2J-F100-53-8	402 00
PWA 71529	Holder	2J-F100-53-8	402 00
PWA 71530	Adapter	2J-F100-53-8	402 00
PWA 71531	Cover	2J-F100-53-8	402 00
PWA 71537	Adapter	2J-F100-53-6 2J-F100-53-7	424 00 406 00, 409 00
PWA 71545	Fixture	2J-F100-53-6	418 00
PWA 71546	Fixture	2J-F100-53-6	418 00
PWA 71547	Fixture	2J-F100-53-6	418 00
PWA 71548	Fixture	2J-F100-53-6	418 00
PWA 71549	Fixture	2J-F100-53-7	409 00
PWA 71552	Fixture	2J-F100-53-7	406 00
PWA 71557	Fixture	2J-F100-53-7	472 00
PWA 71558	Fixture	2J-F100-53-7	472 00
PWA 71559	Fixture	2J-F100-53-7	472 00
PWA 71594	Mask	2J-F100-53-6	418 00
PWA 71595	Mask	2J-F100-53-6	418 00
PWA 71596	Mask	2J-F100-53-6	418 00
PWA 71597	Mask	2J-F100-53-6	418 00
PWA 71609	Mask	2J-F100-53-6	418 00
PWA 71610	Mask	2J-F100-53-6	418 00
PWA 71618	Fixture	2J-F100-53-5	545 00
PWA 71641	Gage	2J-F100-53-7	372 00, 472 00
PWA 71763	Fixture	2J-F100-53-7	407 00
PWA 71764	Gage	2J-F100-53-7	407 00
PWA 71767	Drill Jig	2J-F100-53-7	407 00
PWA 71769	Gage	2J-F100-53-7	407 00
PWA 71770	Gage	2J-F100-53-7	407 00
PWA 71891	Mandrel Set	2J-F100-53-6	319 00
PWA 71902	Fixture	2J-F100-53-6	319 00
SAALC7744900	Spool Set	2J-F100-53-7	415 00, 432 00
SAALC7744972	Adapter	2J-F100-53-7	370 00
SAALC7745063	Fixture	2J-F100-53-7	415 00
SAALC7745064	Mask	2J-F100-53-7	415 00
SAALC7745065	Mask	2J-F100-53-7	415 00
SAALC7745066	Mask	2J-F100-53-7	415 00
SAALC7745067	Mask	2J-F100-53-7	415 00
SAALC7745098	Fixture	2J-F100-53-11	424 00
SAALC7836636	Mask	2J-F100-53-9	445 00
SAALC7836684	Fixture	2J-F100-53-9	445 00
SAALC7944916	Fixture	2J-F100-53-11	412 00
SAALC7944975	Fixture	2J-F100-53-7	411 00
SAALC7944976	Fixture	2J-F100-53-7	411 00

Master Numerical List of Support Equipment (continued)

Part Number	Nomenclature	Technical Order Number	WP/SWP No.
SAALC7944977	Fixture	2J-F100-53-7	411 00
SAALC7944978	Holder	2J-F100-53-7	411 00
SAALC7944979	Cover	2J-F100-53-7	411 00
SAALC7944980	Cover	2J-F100-53-7	411 00
SAALC7944981	Cover	2J-F100-53-7	411 00
SAALC7944982	Cover	2J-F100-53-7	411 00
SAALC7944983	Cover	2J-F100-53-7	411 00
SAALC8041518	Ring	2J-F100-53-11	432 00
SAALC8041519	Plug	2J-F100-53-11	432 00
SAALC8041520	Fixture	2J-F100-53-11	432 00
SAALC8041532	Tool Kit	2J-F100-53-11	412 00
SAALC8041552	Chuck	2J-F100-53-11	420 00
SAALC8041553	Ring	2J-F100-53-11	420 00
SAALC8041554	Fixture	2J-F100-53-11	420 00
SAALC8041555	Chuck	2J-F100-53-11	417 00
SAALC8041556	Plug	2J-F100-53-11	417 00
SAALC8041557	Fixture	2J-F100-53-11	417 00
SAALC8041558	Holder	2J-F100-53-11	417 00
SAALC8041559	Cover	2J-F100-53-11	417 00
SAALC8041560	Cover	2J-F100-53-11	417 00
SAALC8041561	Cover	2J-F100-53-11	417 00
SAALC8041562	Fixture	2J-F100-53-11	417 00
SAALC8041563	Fixture	2J-F100-53-11	417 00
SAALC8041592	Ring	2J-F100-53-7	411 00
SAALC8041593	Plug	2J-F100-53-7	411 00
SAALC8041594	Ring	2J-F100-53-7	411 00
SAALC8041616	Ring	2J-F100-53-7	432 00
SAALC8041753	Fixture	2J-F100-53-7	432 00
SAALC8041754	Arbor	2J-F100-53-7	432 00
SAALC8041755	Fixture	2J-F100-53-7	432 00
SAALC8041756	Mask	2J-F100-53-7	432 00
SAALC8041757	Mask	2J-F100-53-7	432 00
SAALC8142924	Fixture	2J-F100-53-7	426 00
SAALC8142929	Master	2J-F100-53-7	426 00
SAALC8318893	Fixture	2J-F100-53-11	704 00
SAALC8441775	Tool	2J-F100-53-11	702 00
SAALC8620284	Drifter	2J-F100-53-11	702 00
SAALCX7744811	Fixture	2J-F100-53-11	423 00
SAALCX8620338	Wrench	2J-F100-53-9	031 00
SAALCX8620799	Connector	2J-F100-53-11	024 00
SAALCX8750309	Remover	2J-F100-53-9	031 00
SAALCX8750312	Pusher	2J-F100-53-11	703 00
SAALCX8750370	Holder	2J-F100-53-9	611 00
SAALCX8869968	Adapter	2J-F100-53-11	707 00
SAALCX9053732	Base	2J-F100-53-11	705 00
SAALCX9053739	Adapter	2J-F100-53-11	705 00
SAALCX9053740	Adapter	2J-F100-53-11	705 00

Master Numerical List of Support Equipment (continued)

Part Number	Nomenclature	Technical Order Number	WP/SWP No.
SWE 8100/8200	Torque Multiplier	2J-F100-53-5	103 00, 104 00, 132 00, 704 00, 722 00, 723 00
		2J-F100-53-6	012 00, 702 00
		2J-F100-53-7	011 00, 014 00, 024 00, 031 00, 603 00, 616 00, 701 00, 706 00
		2J-F100-53-9	011 00, 012 00, 611 00, 701 00
SWE 81001/81002	Sling	2J-F100-53-5	103 00, 104 00, 132 00, 704 00, 722 00, 723 00
		2J-F100-53-6	012 00, 702 00
		2J-F100-53-7	011 00, 014 00, 024 00, 031 00, 603 00, 616 00, 701 00, 706 00
		2J-F100-53-9	011 00, 012 00, 611 00, 701 00

WORK PACKAGE

TECHNICAL PROCEDURES

TOOLS COVERED BY SEPARATE PUBLICATIONS

EFFECTIVITY: ENGINE MODEL F100-PW-229

LIST OF EFFECTIVE WP PAGES

Total Number of Pages in this WP is 4

PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.
1	28	3	26	4	28
2	0				

REFERENCE MATERIAL REQUIRED

None

APPLICABLE TIME COMPLIANCE TECHNICAL ORDERS

None

CONSUMABLE MATERIALS

None

EXPENDABLE ITEMS

None

APPLICABLE SUPPORT EQUIPMENT

None

ILLUSTRATED SUPPORT EQUIPMENT

None

1. INTRODUCTION.

a. Maintenance for tools not included in this manual are covered by separate publications. This work package provides the list of tools and separate publications where complete maintenance instructions will be found.

2. TOOLS COVERED BY SEPARATE PUBLICATIONS.

(See Table 1.)

Table 1. Tools Covered By Separate Publications

Tool No	Publication Title	Publication Number
PWA 6507	Flowmeter	T.O. 33D-2-9-11-1
PWA 25672 (Superseded by PWA 61685)	Controller, Thermocouple Indicating Temperature	T.O. 33K5-4-92-16
PWA 50003	Tester, Carbon Seal	T.O. 33D4-6-498-1
PWA 50019	Test Stand, Oil Flow	T.O. 33D4-6-499-1
PWA 50025	Test Set, Ignition A/E 24T-116	T.O. 33D4-6-515-1
PWA 50047	Test Set, Pneumatic, Aircraft Engine Components	T.O. 35D29-8-2-1
PWA 50096	Hydraulic Pressure Tester	T.O. 33D4-6-617-1
PWA 50308	Wrench, Hydraulic	T.O. 32B14-5-2-1
PWA 50319	Maintenance Kit, Aircraft Engine KMU-449/E	T.O. 33D4-6-524-1
PWA 50700	Operation and Maintenance Instructions with Illustrated Parts Breakdown - Heater	T.O. 33D4-6-511-1
PWA 51021	Fixture, Leak Check, Carbon Seal	T.O. 33D4-6-512-1
PWA 51757	Torque Adapter, Primary Convergent Nozzle Ball Screw Actuator, Turn And Count	T.O. 32B14-4-23-1
PWA 52426	Fixture, Leak Check, Carbon Seal	T.O. 33D4-6-512-1
PWA 52454	Operation and Maintenance Instructions with Illustrated Parts Breakdown - Heater	T.O. 33D4-6-511-1
PWA 52464	Operation and Maintenance Instructions with Illustrated Parts Breakdown - Heater	T.O. 33D4-6-511-1
PWA 52666	Wrench, Hydraulic	T.O. 32B14-5-3-1
PWA 52950	Master Test Stand Hydraulic Wrench Calibration	T.O. 33D4-6-563-1
PWA 53645	Pulley Assembly - Front Compressor Rotor and Stator Balance	T.O. 33D4-6-573-1

Table 1. Tools Covered By Separate Publications (continued)

Tool No	Publication Title	Publication Number
PWA 57393	Operation and Maintenance Instructions with Illustrated Parts Breakdown - Heater	T.O. 33D4-6-511-1
PWA 57399	Operation and Maintenance Instructions with Illustrated Parts Breakdown - Heater	T.O. 33D4-6-511-1
PWA 57400	Operation and Maintenance Instructions with Illustrated Parts Breakdown - Heater	T.O. 33D4-6-511-1
PWA 57403	Operation and Maintenance Instructions with Illustrated Parts Breakdown - Heater	T.O. 33D4-6-511-1
PWA 57404	Operation and Maintenance Instructions with Illustrated Parts Breakdown - Heater	T.O. 33D4-6-511-1
PWA 57405	Operation and Maintenance Instructions with Illustrated Parts Breakdown - Heater	T.O. 33D4-6-511-1
PWA 57406	Operation and Maintenance Instructions with Illustrated Parts Breakdown - Heater	T.O. 33D4-6-511-1
PWA 57410	Operation and Maintenance Instructions with Illustrated Parts Breakdown - Heater	T.O. 33D4-6-511-1
PWA 57495	Operation and Maintenance Instructions with Illustrated Parts Breakdown - Heater	T.O. 33D4-6-511-1
PWA 57668	Balance Arbor	T.O. 33D4-6-513-1
PWA 57720	Operation and Maintenance Instructions with Illustrated Parts Breakdown - Heater	T.O. 33D4-6-511-1
PWA 61685	Controller, Thermocouple Indicating Temperature	T.O. 33K5-4-92-16
SWE 8100	Propeller and Engine Shaft Wrenches (Sweeney)	T.O. 32A5-2-2-1
SWE 8200	Propeller and Engine Shaft Wrenches (Sweeney)	T.O. 32A5-2-2-1

WORK PACKAGE

INTRODUCTION

TOOL MAINTENANCE - INSPECTION, REPAIR, REPLACEMENT

EFFECTIVITY: ENGINE MODEL F100-PW-229

LIST OF EFFECTIVE WP PAGES

Total Number of Pages in this WP is 4

PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.
1	28				
2	0				
3	28				
4 Blank	0				

1. INTRODUCTION.

a. This work package introduces the 006 00 and up series of work packages for tool maintenance. The following work packages are included in this series:

WP No.		Title
006 00	Hydraulic Cylinder -	Repair and Maintenance
007 00	PWA 22726 Puller -	No. 1 Bearing Inner Race and Slinger (Hydraulic)
008 00	PWA 50310 Riveter -	No. 1 Bearing Inner Race Retaining Nut
009 00	PWA 50407 Wrench -	Ignition Alternator Driveshaft Bearing Retaining Nuts
010 00	PWA 50409 Puller -	Ignition Alternator Driveshaft Roller Bearing and Spur Gear
011 00	PWA 50410 Puller -	Ignition Alternator Driveshaft Deaerator
012 00	PWA 50426 Puller -	Idler Stub Shaft and Gear Assembly
013 00	PWA 50451 Puller -	Oil Pump Drive Idler Gear Shaft Roller Bearing Outer Race
014 00	PWA 50459 Wrench -	Gearbox Towershaft Gear Roller Bearing Retaining Nut
015 00	PWA 50515 Fixture -	Variable Guide Vane Actuator Clevis Positioning
016 00	PWA 50603 Adapter -	No. 2 Bearing Inner Race Retaining Nut, Counterforce
017 00	PWA 50604 Wrench -	No. 2 Bearing Inner Race Retaining
018 00	PWA 50607 Puller -	No. 2 Bearing Rear Scoop
019 00	PWA 50619 Puller -	No. 3 Bearing and Gear Assembly
020 00	PWA 50685 Puller -	Gearbox Drive Bevel Gearshaft Roller Bearing Inner Race

WP No.		Title
021 00	PWA 50696 Wrench -	Gearbox Drive Bevel Gearshaft Ball Bearing Outer Race Retaining Nut
022 00	PWA 50699 Wrench -	Gearbox Drive Bevel Gearshaft Ball Bearing Inner Race Retaining Nut
023 00	PWA 50701 Puller -	Gearbox Drive Bearing Housing
024 00	PWA 50950 Puller -	Low Turbine Shaft Stiffeners
025 00	PWA 50971 Wrench -	No. 4 Bearing Outer Race Retaining Nut
026 00	PWA 51048 Wrench -	Fan Drive Turbine Rear Balance Bearing Retaining Nut
027 00	PWA 51049 Pusher -	No. 5 Bearing Plug and Balance Spacer into Low Turbine Shaft
028 00	PWA 52667 Wrench - Hand	No. 4 Bearing Oil Scavenge Transfer Tube
029 00	PWA 52686 Wrench -	No. 4 Bearing Oil Pressure Transfer Tube
030 00	PWA 52769 Wrench -	Main Fuel Supply Transfer Tube
031 00	PWA 52891 Wrench -	Hydraulic Loading Four No. 5 Bearing Support Rods
031 01	PWA 56566 Adapter -	Hydraulic Loading Four No. 5 Bearing Support Rods
032 00	PWA 53340 Wrench - Torque	Turbine Hub Retaining Nut
033 00	PWA 53360 Wrench -	No. 5 Bearing Seal Seat Retaining Nut
034 00	PWA 53370 Fixture -	Diffuser Case Oil Tubes Air Leak Check
035 00	PWA 53878 Puller -	No. 5 Bearing Outer Race
036 00	PWA 53889 Pusher -	No. 1 Bearing and Seal Seat
037 00	PWA 51415 Support -	Transfer Adapter
038 00	PWA 51920 Adapter -	Rear Transfer
039 00	PWA 51921 Adapter -	Front Transfer
040 00	PWA 56018 Rotator -	Repair
041 00	Mold Fixtures - Silicone Rubber	Cleaning and Repair
042 00	PWA 55325 Extractor -	37 Degree Conical Seals
043 00 through 049 00		Open
050 00	LM tools	Locally Manufactured Support Equipment
051 00	Various	Lift and Support - Adapters, Brackets, Fixtures, Retainers
052 00	Various	Slings and Hooks
053 00 and up		Open

WORK PACKAGE

TECHNICAL PROCEDURES

HYDRAULIC CYLINDER - REPAIR AND MAINTENANCE

EFFECTIVITY: ENGINE MODEL F100-PW-229

LIST OF EFFECTIVE WP PAGES

Total Number of Pages in this WP is 10

PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.
1 - 9	0				
10 Blank	0				

REFERENCE MATERIAL REQUIRED

None

APPLICABLE TIME COMPLIANCE TECHNICAL ORDERS

None

CONSUMABLE MATERIALS

Nomenclature	Specification/Vendor Part Number
Cloth, lint-free	-
Solvent, petroleum	P-D-680, Type II

EXPENDABLE ITEMS

None

APPLICABLE SUPPORT EQUIPMENT

None

ILLUSTRATED SUPPORT EQUIPMENT

None

1. INTRODUCTION.

a. This work package contains instructions for maintenance of Enerpac hydraulic cylinders installed on PWA pullers, pushers, and fixtures.

2. CLEANING.

a. Use soft bristle brush to loosen dirt and remove foreign material.

b. Clean all parts except U-cups using P-D-680, Type II cleaning solvent or equivalent. Wipe solvent from tool with clean, dry, lint-free cloth.

c. Dry with compressed air at 30 psig maximum discharge pressure.

3. INSPECTION.

(See Tables 1 and 2.)

a. Inspect hydraulic cylinder. (See tables 1 and 2.)

Table 1. Serviceable and Replacement Limits

Frequency	Inspection Area	Inspection Method And Condition	Maximum Serviceable Limits	Maximum Reparable Limits	Corrective Action
As required	Entire cylinder	Visual for oil leaks, damaged or worn U-cups, seals, or packings	Any amount of leakage	None	Replace cylinder details with parts in repair kit. (See Table 2.)

4. REPAIR/REPLACEMENT.

(See Figures 1 through 4 and table 2.)

a. Disassembly.

(1) Hold hydraulic cylinder firmly and use a socket wrench to unscrew coupler from base or cylinder.

(2) If the hydraulic cylinder leaks oil, disassemble in accordance with applicable exploded view illustration.

(3) Use table 2 to determine the proper Enerpac hydraulic cylinder repair kit to install in the leaking cylinder.

(4) Install replacement U-cups, back-up washers and retaining rings contained in cylinder repair kits.

(5) Assemble the cylinder per the exploded view illustration. (See table 2 and figures 1 through 4.)

(6) Install coupler kit and thread coupler into the cylinder or base. Tighten firmly.

Table 2. Listing of Repair Kits for Hydraulic Cylinders and Couplers

PWA Tool No.	Hydraulic Cyl PN	Kit No.	Coupler PN	Kit No.
22726	RC-106	RC-102K	AR-400	A-604K
50607	RC-102	RC-102K	AR-400	A-604K
50619	RC-102	RC-102K	AR-400	A-604K
50981	RC-106	RC-104K	AR-400	A-604K
52590	RCH-202T	RC-202K	AR-400	A-604K
52891	RCH-121*	SEE BELOW	AR-400	A-604K
53878	PWA 53845-1	RCH-121K-1	AR-400	A-604K
53889	PWA 53845-1	RCH-121K-1	AR-400	A-604K

*Cylinders with serial numbers starting with 0 (zero) use repair kit RC-112K.

*Cylinders with serial numbers starting with B use repair kit RCH-121-K-1.

1. THREAD PROTECTOR
2. WIPER RING
3. BEARING STOP RING
4. SADDLE
5. MALE ADAPTER 1 1/4 INCH NPT
6. BACK–UP WASHER
7. WASHER
8. BEARING
9. PLUNGER
10. U–CUP
11. WASHER
12. RETAINING RING
13. SPRING
14. SCREW
15. BASE
16. FEMALE ADAPTER 1 1/4 INCH NPT
17. SOCKET HEAD CAPSCREW
18. RETAINING SCREW
19. HALF COUPLER
20. HIGH–FLOW COUPLER
21. DUST CAP
22. DUST CAP

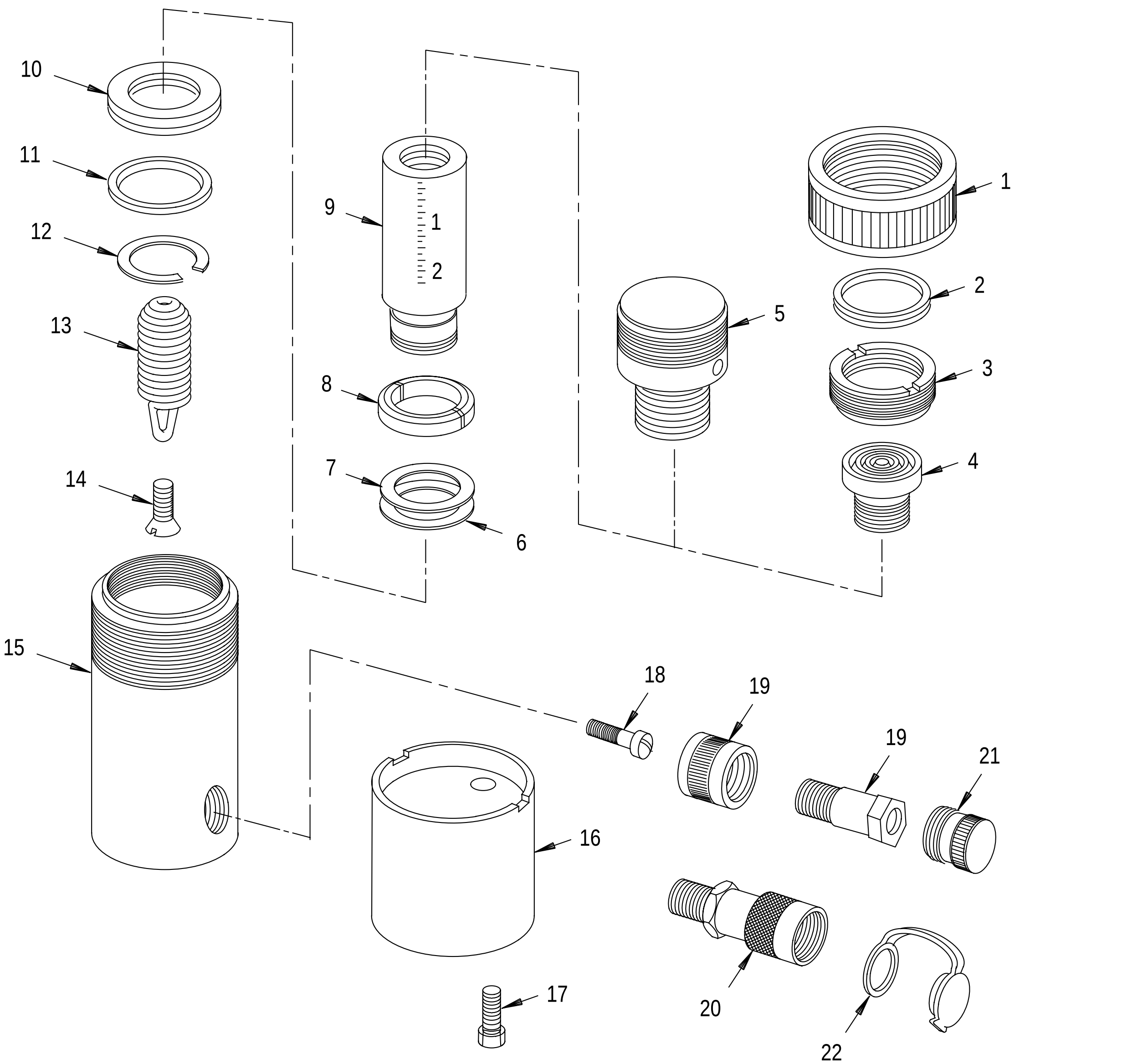


Figure 1. Enerpac Hydraulic Cylinder RC-102

NOTE

PLUGS (4) ARE INSTALLED FLUSH WITH CYLINDER BASE TO PROTECT MOUNTING HOLES WHEN USED AS A JACKING CYLINDER. ITEMS (9, 26, AND 27) ARE OPTIONAL ATTACHMENTS. ASSEMBLE BEARINGS (12 AND 13) WITH SPLITS STAGGERED 90 DEGREES APART. ITEMS (14, 16, 18, AND 23) ARE PARTS SUPPLIED IN KIT, ENERPAC RC 102 K.

1. DUST CAP
2. HALF COUPLER
3. SCREW
4. PLUG
5. BASE
6. SCREW
7. BUSHING
8. SPRING
9. FEMALE ADAPTER (1 1/4 INCH NPT)
10. SOCKET HEAD
11. PLUNGER
12. BEARING
13. BEARING
14. WASHER
15. U–CUP
16. WASHER
17. RETAINING RING
18. GASKET
19. CAP NUT
20. BEARING SLEEVE
21. BEARING STOP RING
22. WIPER RING
23. THREAD PROTECTOR
24. SADDLE
25. MALE ADAPTER (1 1/4 INCH NPT)
26. ADAPTER

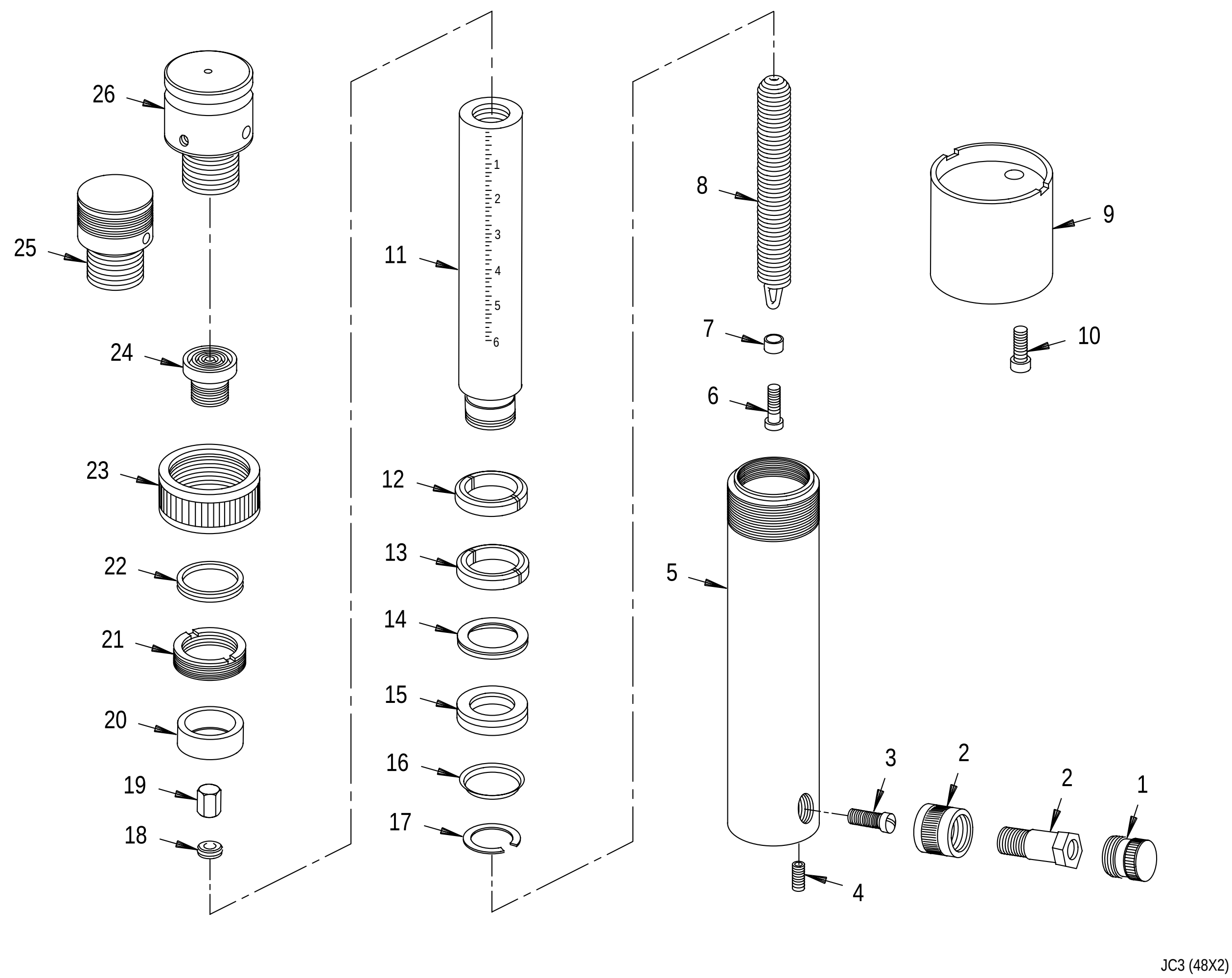


Figure 2. Enerpac Hydraulic Cylinder, RC-106

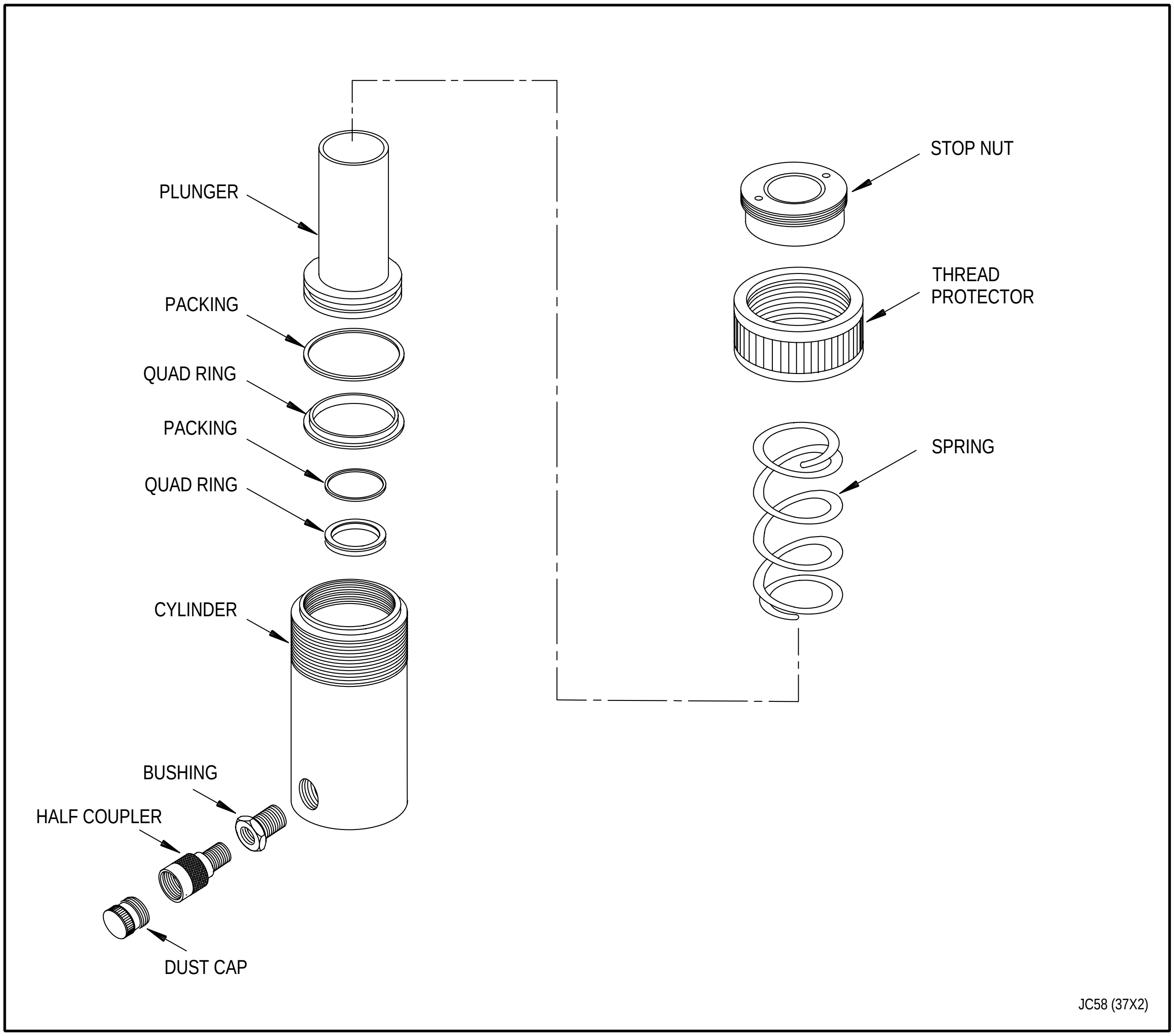


Figure 3. Enerpac Hydraulic Cylinder, RCH-121

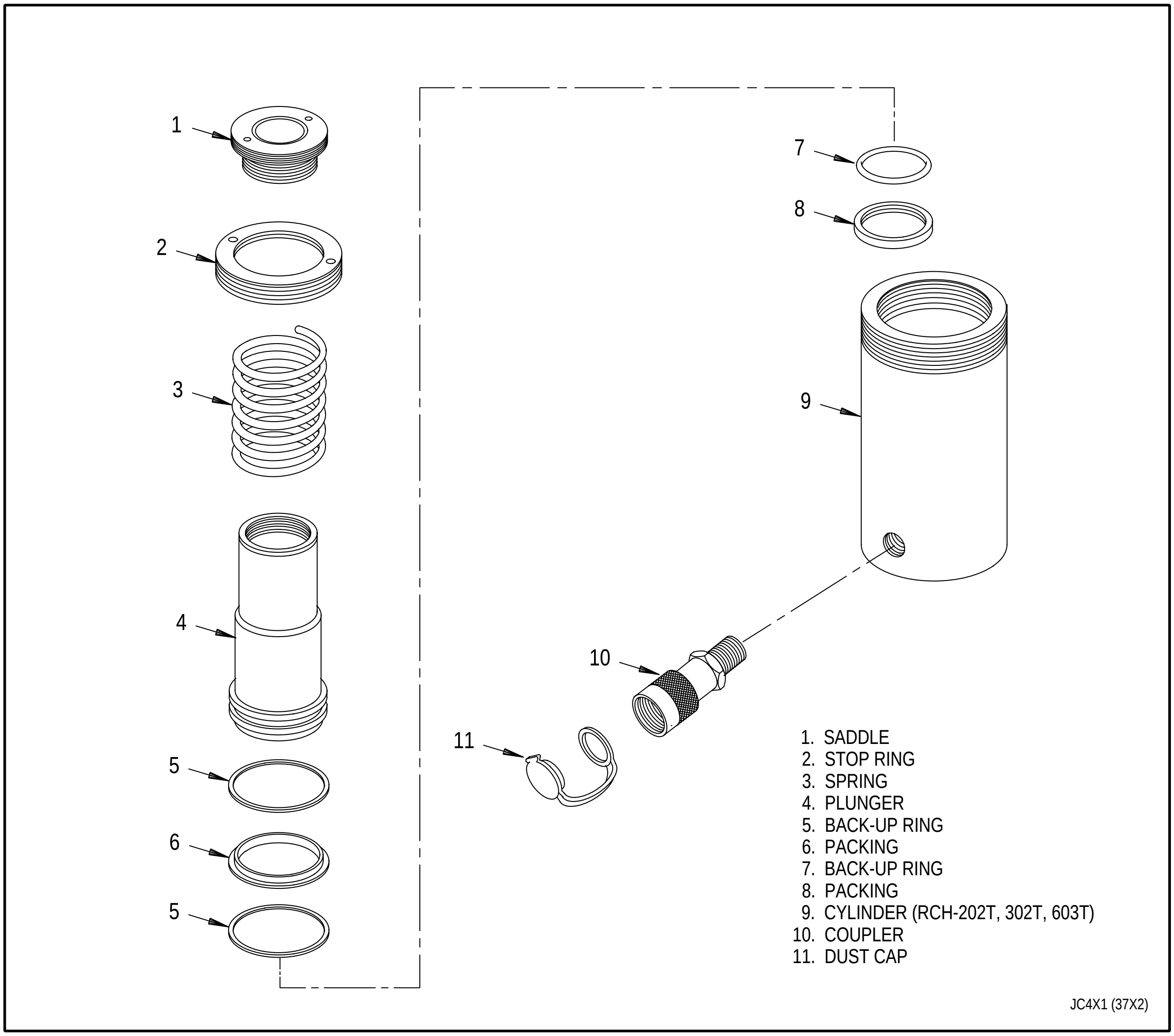


Figure 4. Enerpac Hydraulic Cylinder, RCH-202T

WORK PACKAGE

TECHNICAL PROCEDURES

PWA 22726 PULLER - NO. 1 BEARING INNER RACE AND SLINGER (HYDRAULIC)

EFFECTIVITY: ENGINE MODEL F100-PW-229

LIST OF EFFECTIVE WP PAGES

Total Number of Pages in this WP is 8

PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.
1 - 8	0				

REFERENCE MATERIAL REQUIRED

Title		Number
Support Equipment and Numerical Tool List	- - - - - - - - - - -	T.O. 2J-F100-53-3
Hydraulic Cylinder Repair and Maintenance	- - - - - - - - - - -	WP 006 00

APPLICABLE TIME COMPLIANCE TECHNICAL ORDERS

None

CONSUMABLE MATERIALS

Nomenclature	Specification/Vendor Part Number
Cloth, lint-free	-
Oil, preservative	MIL-L-6081, Grade 1010
Solvent, petroleum	P-D-680, Type II
Tape, teflon	-

EXPENDABLE ITEMS

None

APPLICABLE SUPPORT EQUIPMENT

None

ILLUSTRATED SUPPORT EQUIPMENT

None

1. INTRODUCTION.

a. This work package contains instructions for maintenance of PWA 22726 puller.

2. CLEANING.

a. Use soft bristle brush to loosen dirt and remove foreign material.

b. Remove grease using P-D-680, Type II cleaning solvent or equivalent. Wipe solvent from tool with clean, dry, lint-free cloth.

c. Dry with compressed air at 30 psig maximum discharge pressure.

3. INSPECTION.
(See Figure 1 and Table 1.)

a. Inspect PWA 22726 puller.
(See figure 1 and table 1.)

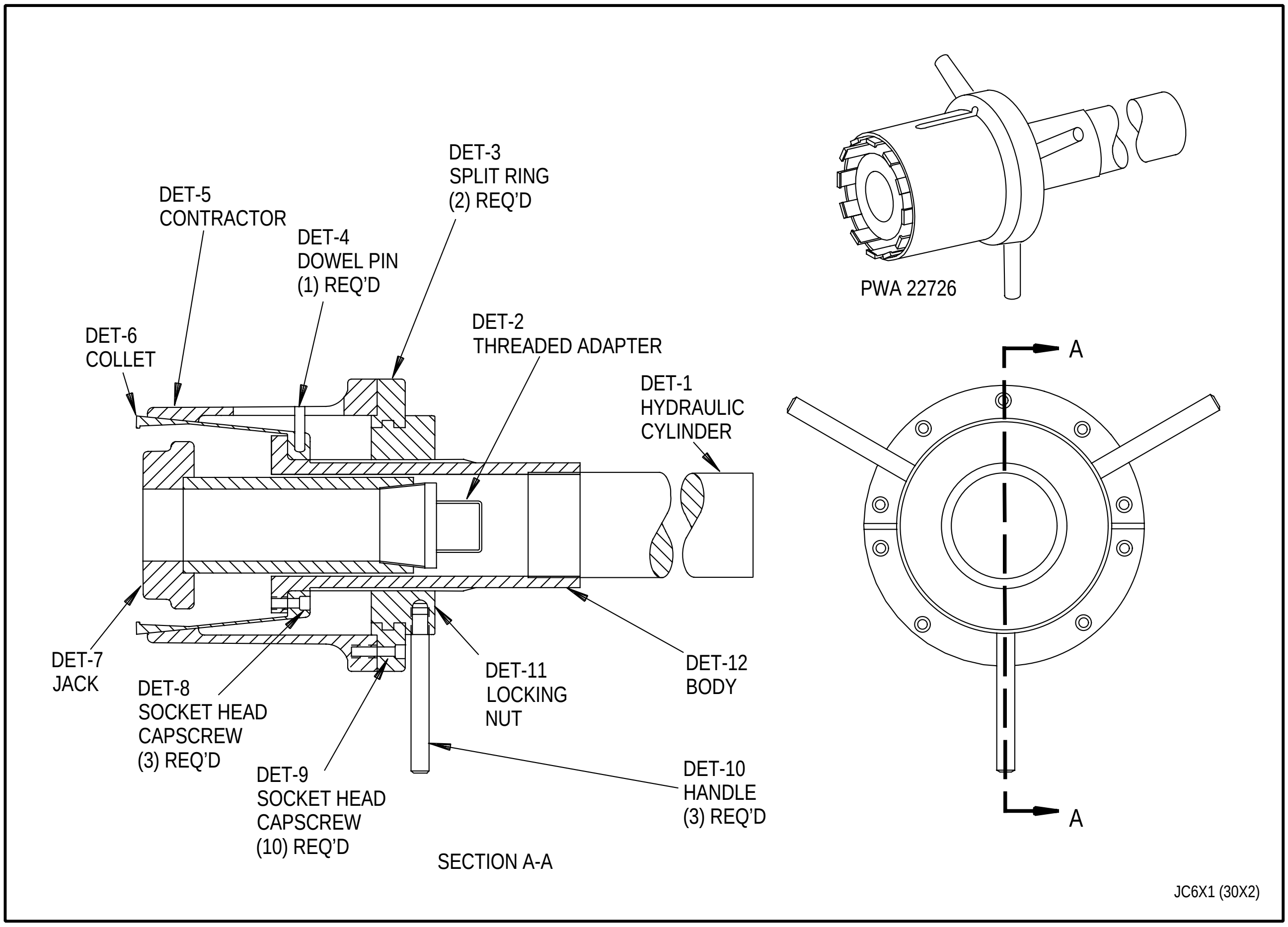


Figure 1. PWA 22726 Puller

Table 1. Serviceable and Replacement Limits

Frequency	Inspection Area	Inspection Method And Condition	Maximum Serviceable Limits	Maximum Reparable Limits	Corrective Action
Prior to use	Entire tool	Visual for nicks, burrs, broken, or missing details	None	None	Blend, use fine stone or fine file. Repair or replace details.
	Detail-1 hydraulic cylinder	Leakage	None	None	Replace U-cups. Refer to T.O. 2J-F100-53-3, WP 006 00.
	Detail-2 threaded adapter	Visual for thread damage	None	None	Replace.
	Detail-3 split rings	Visual for nicks, burrs, or thread damage	None	None	Blend or replace.
	Detail-4 dowel pin	Visual for damage or bent	None	None	Replace.
	Detail-5 contractor	Visual for nicks, burrs, or thread damage	None	None	Blend or replace.
	Detail-6 collet	Visual for nicks, burrs, or broken puller lips. Loss of temper	None	None	Blend or replace.
	Detail-7 jack	Visual for nicks, burrs, or thread damage	None	None	Blend or replace.

Table 1. Serviceable and Replacement Limits (continued)

Frequency	Inspection Area	Inspection Method And Condition	Maximum Serviceable Limits	Maximum Reparable Limits	Corrective Action
Prior to use (continued)	Detail-8,-9 socket head capscrew	Visual for thread or socket damage	None	None	Replace.
	Detail-10 handle	Visual for nicks, burrs, sharp edges, or thread damage	None	None	Blend or replace.
	Detail-11 locking nut	Visual for nicks, burrs, or thread damage	None	None	Blend or replace.
	Detail-12 body	Visual for nicks, burrs, or thread damage	None	None	Blend or replace.
As required	Entire tool	Visual for coating	No bare spots allowed	None	Refurbish black oxide per AMS 2485 or equivalent.

4. REPAIR/REPLACEMENT.

(See figure 1.)

NOTE

Complete disassembly and assembly instructions are provided for the tool, however, it is only necessary to disassemble tool to the extent of replacing or repairing worn or damaged details.

a. Disassembly.

(1) Back off detail-11 locking nut until attached detail-5 contractor is loose from detail-6 collet.

(2) Remove ten detail-9 socket head capscrews that secure detail-3 split rings to contractor.

(3) Continue to back off detail-11 locking nut until split rings are free.

(4) Remove split rings.

(5) Remove locking nut from detail-12 body and leave nut on hydraulic cylinder barrel.

(6) Remove three detail-10 handles from locking nut.

(7) Move contractor towards cylinder by lifting over detail-4 dowel pin. Leave contractor on cylinder barrel.

(8) Remove three detail-8 socket head capscrews that retain collet to body.

(9) Move collet towards cylinder to gain access to detail-7 jack. Leave collet on cylinder barrel.

(10) Remove jack from detail-2 threaded adapter saddle. Extend cylinder plunger under pressure if required to prevent plunger rotation. Separate details.

(11) Remove threaded adapter saddle from cylinder plunger.

(12) Remove detail-1 hydraulic cylinder from body assembly. Remove details stored on cylinder barrel during disassembly.

(13) Remove coupler from cylinder.

NOTE

Repair or replacement of PWA 22726 detail-1 hydraulic cylinder and coupler is limited to parts itemized in repair kit. Refer to T.O. 2J-F100-53-3, WP 006 00.

(14) Remove dowel pin from collet.

b. Repair of details. Not applicable.

c. Assembly.

(1) Install coupler into cylinder barrel threaded port. Teflon thread tape is recommended if available. Tighten firmly with wrench.

(2) Install detail-2 threaded adapter saddle handtight into cylinder plunger.

(3) Install detail-4 dowel pin into detail-6 collet.

(4) Install collet on detail-12 body and secure with three detail-8 socket head capscrews. Torque screws 27 to 30 pound-inches.

(5) Install detail-5 contractor over collet.

(6) Install three detail-10 handles into threaded holes in detail-11 locking nut.

(7) Install locking nut on body threads.

(8) Install detail-3 split rings around locking nut and thread into contractor.

(9) Secure split rings to contractor with 10 detail-9 socket head capscrews. Torque screws 27 to 30 pound-inches.

(10) Install detail-1 hydraulic cylinder into body. Tighten firmly.

(11) Extend hydraulic cylinder under pressure and install detail-7 jack handtight onto threaded saddle.

d. Apply MIL-L-6081, Grade 1010 corrosion preventive oil prior to storage.

WORK PACKAGE

TECHNICAL PROCEDURES

PWA 50310 RIVETER - NO. 1 BEARING INNER RACE RETAINING NUT

EFFECTIVITY: ENGINE MODEL F100-PW-229

LIST OF EFFECTIVE WP PAGES

Total Number of Pages in this WP is 6

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6 Blank	0				

REFERENCE MATERIAL REQUIRED

None

APPLICABLE TIME COMPLIANCE TECHNICAL ORDERS

None

CONSUMABLE MATERIALS

Nomenclature	Specification/Vendor Part Number
Cloth, lint-free	-
Oil, preservative	MIL-L-6081, Grade 1010
Solvent, petroleum	P-D-680, Type II

EXPENDABLE ITEMS

None

APPLICABLE SUPPORT EQUIPMENT

None

ILLUSTRATED SUPPORT EQUIPMENT

None

1. INTRODUCTION.

a. This work package contains instructions for maintenance of PWA 50310 riveter.

2. CLEANING.

a. Use soft bristle brush to loosen dirt and remove foreign material.

b. Remove grease using P-D-680, Type II cleaning solvent or equivalent. Wipe solvent from tool with clean, dry, lint-free cloth.

c. Dry with compressed air at 30 psig maximum discharge pressure.

3. INSPECTION.
(See Figure 1 and Table 1.)

a. Inspect PWA 50310 riveter. (See figure 1 and table 1.)

4. REPAIR/REPLACEMENT.
(See figure 1.)

NOTE

Complete disassembly and assembly instructions are provided for the tool, however, it is only necessary to disassemble tool to the extent of replacing or repairing worn or damaged details.

a. Disassembly.

(1) Press or drift detail-2 die from jaw of detail-1 plierwrench.

(2) Press or drift detail-3 button from jaw of plierwrench.

b. Repair of details. Not applicable.

c. Assembly.

(1) Press detail-2 die in jaw of detail-1 plierwrench.

(2) Press detail-3 button in jaw of plierwrench.

d. Apply MIL-L-6081, Grade 1010 corrosion preventive oil prior to storage.

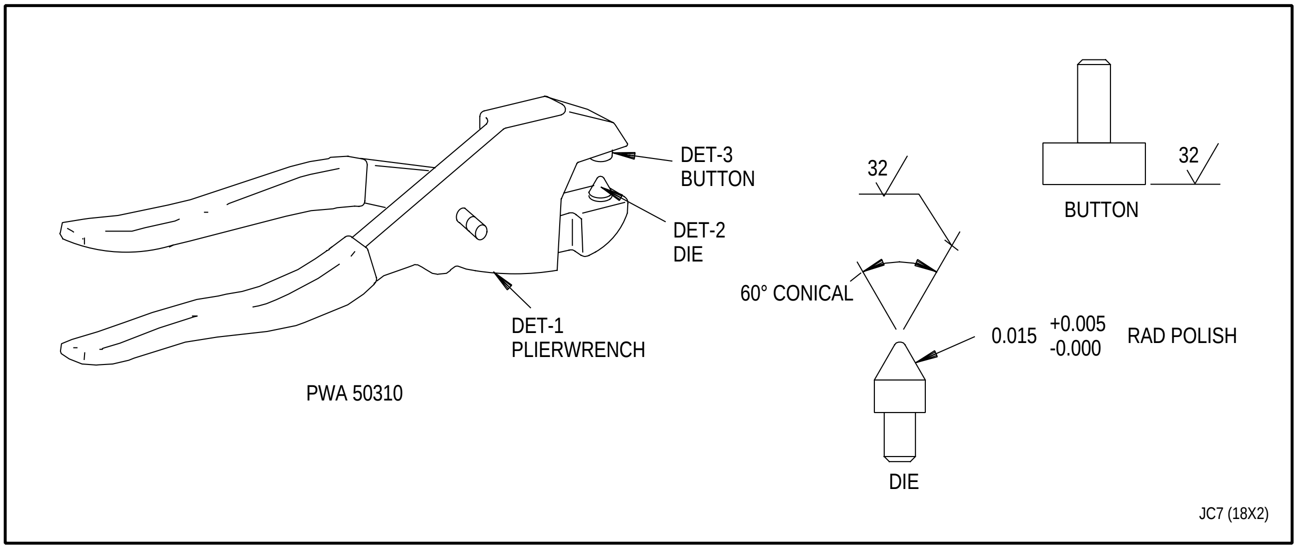


Figure 1. PWA 50310 Riveter

Table 1. Serviceable and Replacement Limits

Frequency	Inspection Area	Inspection Method And Condition	Maximum Serviceable Limits	Maximum Reparable Limits	Corrective Action
Prior to use	Entire tool	Visual for nicks, burrs, broken, or missing details	None	None	Blend, use fine stone or fine file. Repair or replace details.
	Detail-1 plier - wrench	Visual for nicks, burrs, twisted, or sprung jaws	None	None	Blend or replace with NHA.
	Detail-2 die	Visual for broken die point	None	None	Replace die.
	Detail-3 button	Visual for wear and surface finish	None	None	Polish with fine stone or fine file or replace button.
As required	Entire tool	Visual for coating	No bare spots allowed	None	Refurbish black oxide per AMS 2485 or equivalent.

WORK PACKAGE

TECHNICAL PROCEDURES

PWA 50407 WRENCH - IGNITION ALTERNATOR DRIVESHAFT BEARING RETAINING NUTS

EFFECTIVITY: ENGINE MODEL F100-PW-229

LIST OF EFFECTIVE WP PAGES

Total Number of Pages in this WP is 6

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REFERENCE MATERIAL REQUIRED

None

APPLICABLE TIME COMPLIANCE TECHNICAL ORDERS

None

CONSUMABLE MATERIALS

Nomenclature	Specification/Vendor Part Number
Cloth, lint-free	-
Oil, preservative	MIL-L-6081, Grade 1010
Solvent, petroleum	P-D-680, Type II

EXPENDABLE ITEMS

None

APPLICABLE SUPPORT EQUIPMENT

None

ILLUSTRATED SUPPORT EQUIPMENT

None

1. INTRODUCTION.

a. This work package contains instructions for maintenance of PWA 50407 wrench.

2. CLEANING.

a. Use soft bristle brush to loosen dirt and remove foreign material.

b. Remove grease using P-D-680, Type II cleaning solvent or equivalent. Wipe solvent from tool with clean, dry, lint-free cloth.

c. Dry with compressed air at 30 psig maximum discharge pressure.

3. INSPECTION.

(See Figure 1 and Table 1.)

a. Inspect PWA 50407 wrench. (See figure 1 and table 1.)

4. REPAIR/REPLACEMENT.

(See figure 1.)

NOTE

Complete disassembly and assembly instructions are provided for the tool, however, it is only necessary to disassemble tool to the extent of replacing or repairing worn or damaged details.

a. Disassembly.

(1) Remove eight detail-2 teeth from detail-1 wrench assembly by removing eight detail-3 socket head capscrews.

b. Repair of details. Not applicable.

NOTE

Wrench teeth are identical on both ends and may be reversed if one end is bent, twisted, or damaged.

c. Assembly.

(1) Install eight detail-2 teeth on detil-1 wrench assembly and secure with eight detail-3 socket head capscrews. Torque screws 1 to 3 pound-inches.

d. Apply MIL-L-6081, Grade 1010 corrosion preventive oil prior to storage.

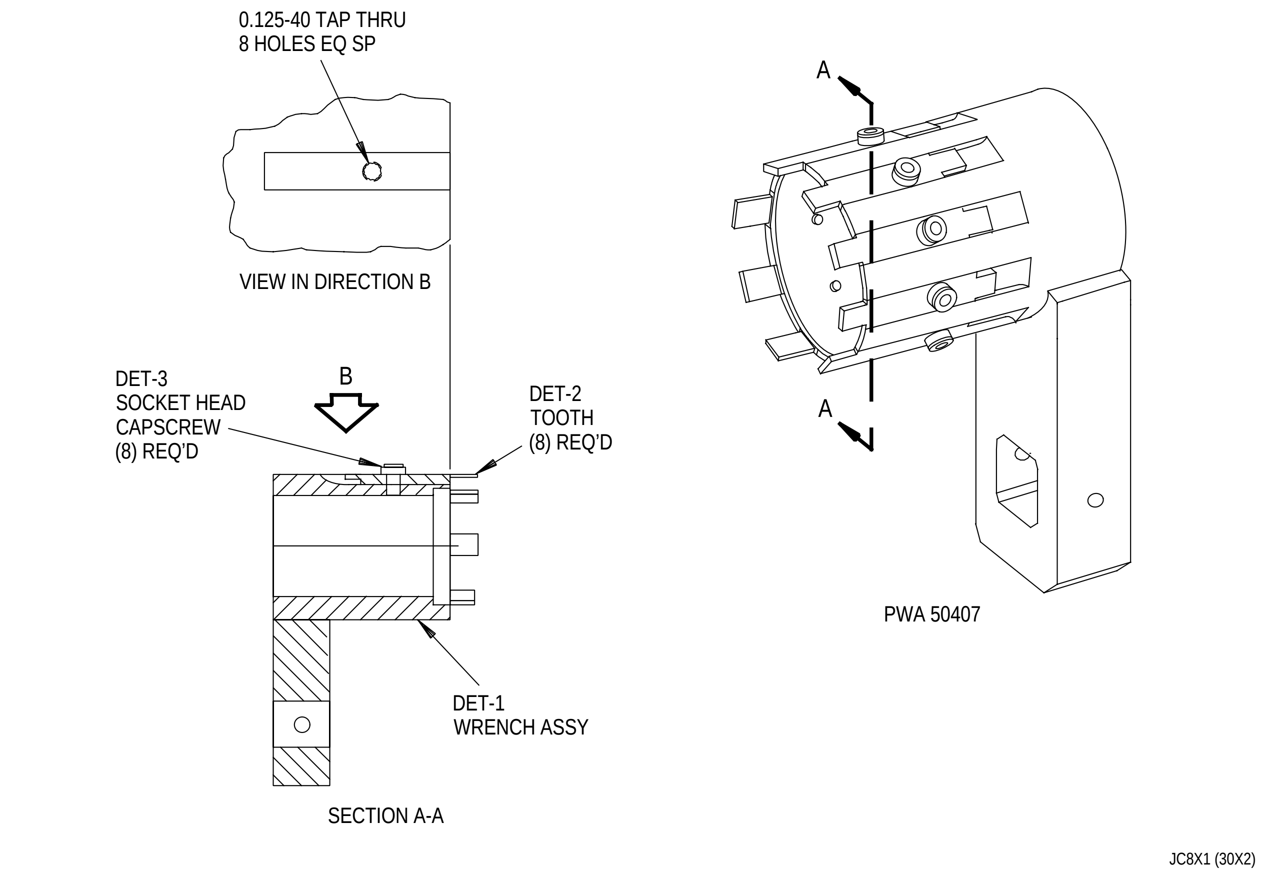


Figure 1. PWA 50407 Wrench

Table 1. Serviceable and Replacement Limits

Frequency	Inspection Area	Inspection Method And Condition	Maximum Serviceable Limits	Maximum Reparable Limits	Corrective Action
Prior to use	Entire tool	Visual for nicks, burrs, broken, or missing details	None	None	Blend, use fine stone or fine file. Repair or replace details.
	Detail-1 wrench assembly	Visual for nicks, burrs, or thread damage	None	None	Blend or replace wrench.
	Detail-2 tooth	Visual for damage or broken condition	None	None	Reverse or replace tooth.
	Detail-3 socket head capscrew	Visual for thread or socket damage	None	None	Replace.
As required	Entire tool	Visual for coating	No bare spots allowed	None	Refurbish black oxide per AMS 2485 or equivalent.

WORK PACKAGE

TECHNICAL PROCEDURES

PWA 50409 PULLER - IGNITION ALTERNATOR DRIVESHAFT ROLLER BEARING AND SPUR GEAR

EFFECTIVITY: ENGINE MODEL F100-PW-229

LIST OF EFFECTIVE WP PAGES

Total Number of Pages in this WP is 8

PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.
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8 Blank	0				

REFERENCE MATERIAL REQUIRED

None

APPLICABLE TIME COMPLIANCE TECHNICAL ORDERS

None

CONSUMABLE MATERIALS

Nomenclature	Specification/Vendor Part Number
Cloth, lint-free	-
Oil, preservative	MIL-L-6081, Grade 1010
Solvent, petroleum	P-D-680, Type II

EXPENDABLE ITEMS

None

APPLICABLE SUPPORT EQUIPMENT

None

ILLUSTRATED SUPPORT EQUIPMENT

None

1. INTRODUCTION.

a. This work package contains instructions for maintenance of PWA 50409 puller.

2. CLEANING.

a. Use soft bristle brush to loosen dirt and remove foreign material.

b. Remove grease using P-D-680, Type II cleaning solvent or equivalent. Wipe solvent from tool with clean, dry, lint-free cloth.

c. Dry with compressed air at 30 psig maximum discharge pressure.

3. INSPECTION.

(See Figure 1 and Table 1.)

a. Inspect PWA 50409 puller. (See figure 1 and table 1.)

4. REPAIR/REPLACEMENT.

(See figure 1.)

NOTE

Complete disassembly and assembly instructions are provided for the tool, however, it is only necessary to disassemble tool to the extent of replacing or repairing worn or damaged details.

a. Disassembly.

(1) Remove three detail-4 wing nuts and detail-8 washers from jaw assembly threads.

(2) Remove detail-9 jaw assembly set, consisting of three jaw assemblies, from detail-6 body assembly.

(3) Remove detail-2 sleeve from detail-5 screw by pressing or drifting out detail-7 dowel pin from sleeve.

(4) Remove detail-3 ball from ID of sleeve.

(5) Remove detail-5 screw from body assembly.

b. Repair of details. Not applicable.

c. Assembly.

(1) Install detail-5 screw through detail-6 body assembly. (See figure 1.)

(2) Install detail-3 ball into smaller hole of detail-2 sleeve.

(3) Install sleeve and ball on grooved end of screw.

NOTE

Sleeve shall move freely.

(4) Press detail-7 dowel pin through sleeve and groove in screw.

(5) Install detail-9 jaw assembly set through body from sleeve side. Align jaw assembly set with slots in body.

(6) Secure jaw assembly set with detail-8 washers and detail-4 wing nuts.

d. Apply MIL-L-6081, Grade 1010 corrosion preventive oil prior to storage.

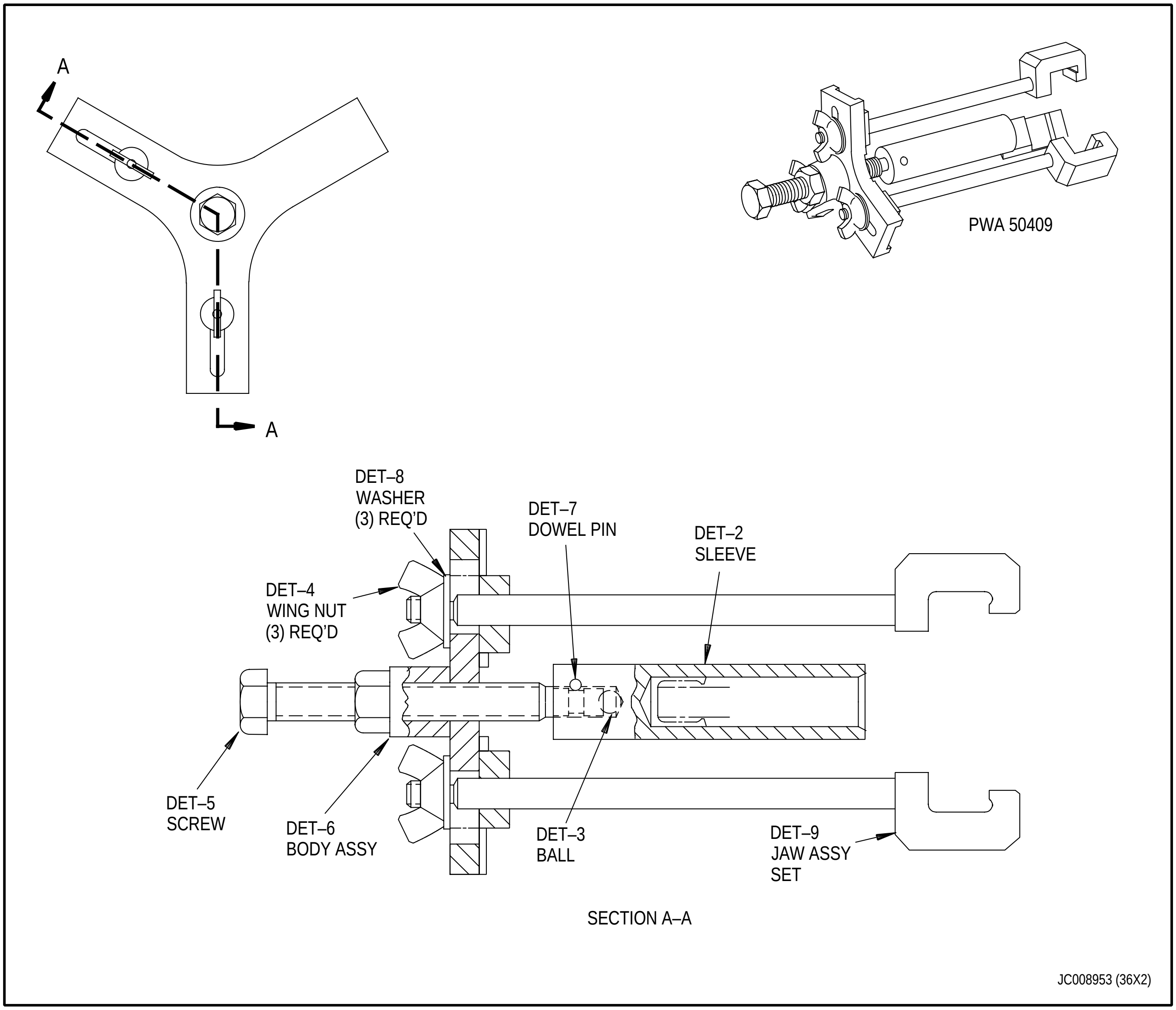


Figure 1. PWA 50409 Puller

Table 1. Serviceable and Replacement Limits

Frequency	Inspection Area	Inspection Method And Condition	Maximum Serviceable Limits	Maximum Reparable Limits	Corrective Action
Prior to use	Entire tool	Visual for nicks, burrs, broken, or missing details	None	None	Blend, use fine stone or fine file. Repair or replace details.
	Detail-2 sleeve	Visual for nicks, burrs, or damage to ID or end face	None	None	Blend or replace.
	Detail-3 ball	Damage	None	None	Replace.
	Detail-4 wing nut	Visual for nicks, burrs, sharp edges, or thread damage	None	None	Replace.
	Detail-5 screw	Visual for thread or wrench flat damage	None	None	Replace.
	Detail-6 body assembly	Visual for nicks, burrs, slot, or thread damage	None	None	Blend or replace.

Table 1. Serviceable and Replacement Limits (continued)

Frequency	Inspection Area	Inspection Method And Condition	Maximum Serviceable Limits	Maximum Reparable Limits	Corrective Action
Prior to use (continued)	Detail-7 dowel pin	Damage	None	None	Replace.
	Detail-8 washer	Damage	None	None	Replace.
	Detail-9 jaw assembly set	Visual for bent rods, jaws, or thread damage	None	None	Replace.
As required	Entire tool	Visual for coating	No bare spots allowed	None	Refurbish black oxide per AMS 2485 or equivalent.

WORK PACKAGE

TECHNICAL PROCEDURES

PWA 50410 PULLER - IGNITION ALTERNATOR DRIVESHAFT DEAERATOR

EFFECTIVITY: ENGINE MODEL F100-PW-229

LIST OF EFFECTIVE WP PAGES

Total Number of Pages in this WP is 8

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REFERENCE MATERIAL REQUIRED

None

APPLICABLE TIME COMPLIANCE TECHNICAL ORDERS

None

CONSUMABLE MATERIALS

Nomenclature	Specification/Vendor Part Number
Cloth, lint-free	-
Oil, preservative	MIL-L-6081, Grade 1010
Solvent, petroleum	P-D-680, Type II

EXPENDABLE ITEMS

None

APPLICABLE SUPPORT EQUIPMENT

None

ILLUSTRATED SUPPORT EQUIPMENT

None

1. INTRODUCTION.

a. This work package contains instructions for maintenance of PWA 50410 puller.

2. CLEANING.

a. Use soft bristle brush to loosen dirt and remove foreign material.

b. Remove grease using P-D-680, Type II cleaning solvent or equivalent. Wipe solvent from tool with clean, dry, lint-free cloth.

c. Dry with compressed air at 30 psig maximum discharge pressure.

3. INSPECTION.

(See Figure 1 and Table 1.)

a. Inspect PWA 50410 puller. (See figure 1 and table 1.)

4. REPAIR/REPLACEMENT.

(See figure 1.)

NOTE

Complete disassembly and assembly instructions are provided for the tool, however, it is only necessary to disassemble tool to the extent of replacing or repairing worn or damaged details.

a. Disassembly.

(1) Remove three detail-7 wing nuts.

(2) Remove three detail-8 leg assemblies from spider assembly.

(3) Press or drift out detail-3 dowel pin which retains detail-1 locator and detail-4 jackscrew.

(4) Remove locator from jackscrew.

(5) Remove detail-2 ball from ID of locator.

(6) Remove jackscrew from detail-5 spider assembly.

b. Repair of details. Not applicable.

c. Assembly.

(1) Thread detail-4 jackscrew through detail-5 spider assembly.

(2) Install detail-2 ball in ID of detail-1 locator.

(3) Install locator on jackscrew.

NOTE

Locator shall be free to move after assembly.

(4) Press detail-3 dowel pin through locator and groove in jackscrew.

(5) Install three detail-8 leg assemblies through spider assembly.

(6) Retain legs with three detail-7 wing nuts.

d. Apply MIL-L-6081, Grade 1010 corrosion preventive oil prior to storage.

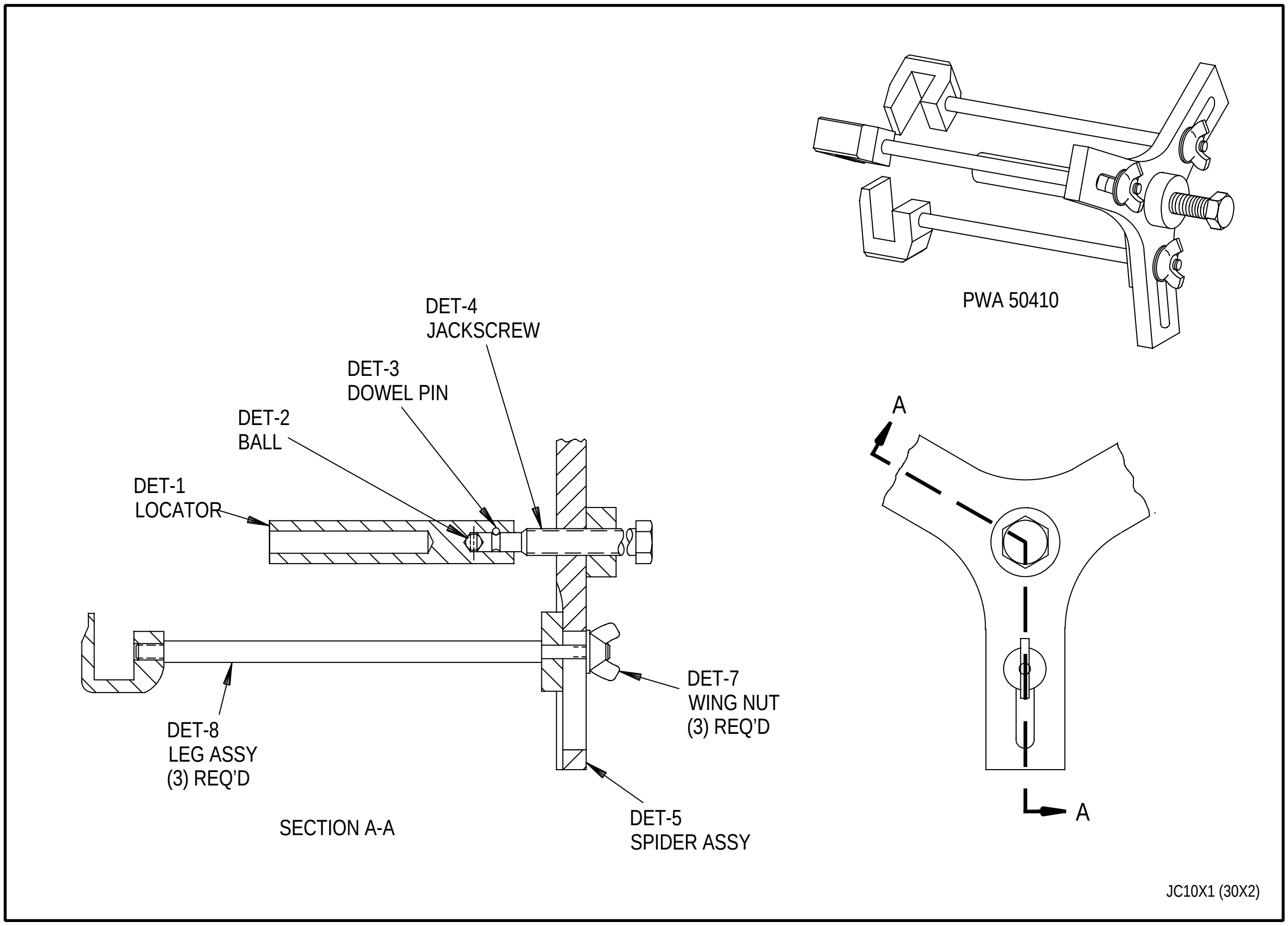


Figure 1. PWA 50410 Puller

Table 1. Serviceable and Replacement Limits

Detail-7 wing nuts	Inspection Area	Inspection Method And Condition	Maximum Serviceable Limits	Maximum Reparable Limits	Corrective Action
Prior to use	Entire tool	Visual for nicks, burrs, broken, or missing details	None	None	Blend, use fine stone or fine file. Repair or replace missing or damaged details.
	Detail-1 locator	Visual for nicks, burrs, or damage to pilot ID or ball seat	None	None	Blend or replace.
	Detail-2 ball	Damage	None	None	Replace.
	Detail-3 dowel pin	Damage	None	None	Replace.
	Detail-4 jackscrew	Visual for thread or wrench flat damage	None	None	Blend or replace.
	Detail-5 spider assembly	Visual for nicks, burrs, damage to thread or slots	None	None	Blend or replace.
	Detail-7 wing nuts	Visual for nicks, burrs, or thread damage	None	None	Replace.

Table 1. Serviceable and Replacement Limits (continued)

Frequency	Inspection Area	Inspection Method And Condition	Maximum Serviceable Limits	Maximum Reparable Limits	Corrective Action
Prior to use (continued)	Detail-8 leg assembly	Visual for nicks, burrs, bent leg, or thread damage	None	None	Blend or replace.
As required	Entire tool	Visual for coating	No bare spots allowed	None	Refurbish black oxide per AMS 2485 or equivalent.
	Detail-8 leg assembly	FPI weld	No cracks allowed	None	Replace.

WORK PACKAGE

TECHNICAL PROCEDURES

PWA 50426 PULLER - IDLER STUB SHAFT AND GEAR ASSEMBLY

EFFECTIVITY: ENGINE MODEL F100-PW-229

LIST OF EFFECTIVE WP PAGES

Total Number of Pages in this WP is 6

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6 Blank	0				

REFERENCE MATERIAL REQUIRED

None

APPLICABLE TIME COMPLIANCE TECHNICAL ORDERS

None

CONSUMABLE MATERIALS

Nomenclature	Specification/Vendor Part Number
Cloth, lint-free	-
Oil, preservative	MIL-L-6081, Grade 1010
Solvent, petroleum	P-D-680, Type II

EXPENDABLE ITEMS

None

APPLICABLE SUPPORT EQUIPMENT

None

ILLUSTRATED SUPPORT EQUIPMENT

None

1. INTRODUCTION.

a. This work package contains instructions for maintenance of PWA 50426 puller.

2. CLEANING.

a. Use soft bristle brush to loosen dirt and remove foreign material.

b. Remove grease using P-D-680, Type II cleaning solvent or equivalent. Wipe solvent from tool with clean, dry, lint-free cloth.

c. Dry with compressed air at 30 psig maximum discharge pressure.

3. INSPECTION.

(Figure 1 and Table 1.)

a. Inspect PWA 50426 puller. (See figure 1 and table 1.)

4. REPAIR/REPLACEMENT.

(See figure 1.)

NOTE

Complete disassembly and assembly instructions are provided for the tool, however, it is only necessary to disassemble tool to the extent of replacing or repairing worn or damaged details.

a. Disassembly.

(1) Remove detail-3 toggle pad from detail-2 hexagon head capscrew.

(2) Remove capscrew from detail-1 puller.

b. Repair of details. Not applicable.

c. Assembly.

(1) Install detail-2 hexagon head capscrew through ID of detail-1 puller. (See figure 1.)

(2) Install detail-3 toggle pad on end of capscrew.

d. Apply MIL-L-6081, Grade 1010 corrosion preventive oil prior to storage.

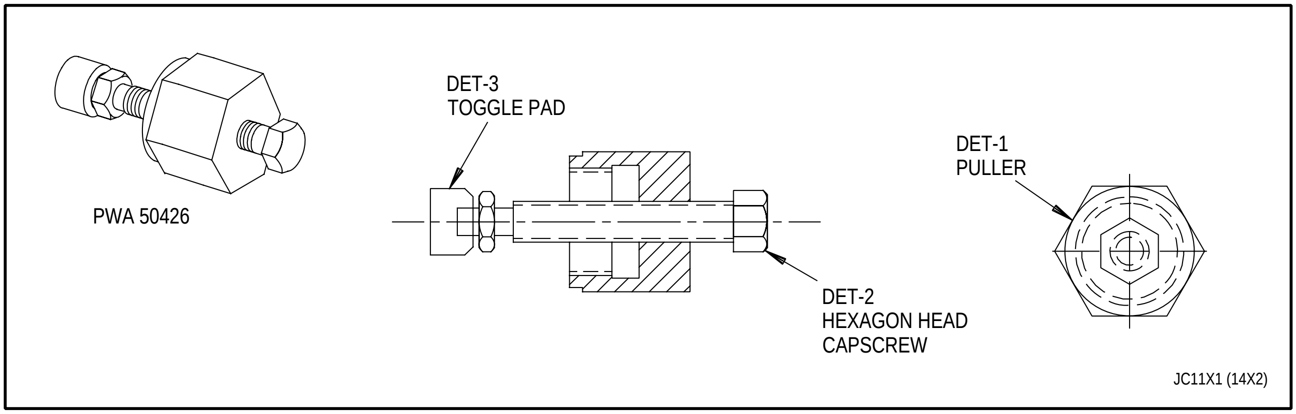


Figure 1. PWA 50426 Puller

Table 1. Serviceable and Replacement Limits

Frequency	Inspection Area	Inspection Method And Condition	Maximum Serviceable Limits	Maximum Reparable Limits	Corrective Action
Prior to use	Entire tool	Visual for nicks, burrs, or thread damage	None	None	Blend, use fine stone or fine file.
	Detail-1 puller	Visual for thread damage	None	None	Chase threads or replace with NHA.
	Detail-2 capscrew	Visual for thread damage	None	None	Chase threads or replace with NHA.
	Detail-3 toggle pad	Visual for nicks, burrs, or thread damage	None	None	Blend, chase threads, or replace with NHA.
As required	Entire tool	Visual for coating	No bare spots allowed	None	Refurbish black oxide per AMS 2485 or equivalent.

WORK PACKAGE

TECHNICAL PROCEDURES

PWA 50451 PULLER - OIL PUMP DRIVE IDLER GEARSHAFT ROLLER BEARING OUTER RACE

EFFECTIVITY: ENGINE MODEL F100-PW-229

LIST OF EFFECTIVE WP PAGES

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REFERENCE MATERIAL REQUIRED

None

APPLICABLE TIME COMPLIANCE TECHNICAL ORDERS

None

CONSUMABLE MATERIALS

Nomenclature	Specification/Vendor Part Number
Cloth, lint-free	-
Oil, preservative	MIL-L-6081, Grade 1010
Solvent, petroleum	P-D-680, Type II

EXPENDABLE ITEMS

None

APPLICABLE SUPPORT EQUIPMENT

None

ILLUSTRATED SUPPORT EQUIPMENT

None

1. INTRODUCTION.

a. This work package contains instructions for maintenance of PWA 50451 puller.

2. CLEANING.

a. Use soft bristle brush to loosen dirt and remove foreign material.

b. Remove grease using P-D-680, Type II cleaning solvent or equivalent. Wipe solvent from tool with clean, dry, lint-free cloth.

c. Dry with compressed air at 30 psig maximum discharge pressure.

3. INSPECTION.

(See Figure 1 and Table 1.)

a. Inspect PWA 50451 puller. (See figure 1 and table 1.)

4. REPAIR/REPLACEMENT.

(See figure 1.)

NOTE

Complete disassembly and assembly instructions are provided for the tool, however, it is only necessary to disassemble tool to the extent of replacing or repairing worn or damaged details.

a. Disassembly.

(1) Remove detail-4 collet by holding hex of expander and unthreading collet from expander.

(2) Remove detail-3 expander by pressing out detail-2 dowel pin. Unthread expander from detail-1 rod.

(3) Remove detail-5 hammer from rod.

b. Repair of details.

(1) Replace detail-1 rod as follows:

(a) Install detail-3 expander on rod.

(b) Transfer drill hole through expander and rod for detail-2 dowel pin. (See figure 1.)

c. Assembly.

(1) Install detail-5 hammer on detail-1 rod.

(2) Install detail-3 expander on rod. Align dowel pin hole in expander and rod.

(3) Install detail-2 dowel pin through expander and rod.

(4) Install detail-4 collet handtight onto expander.

d. Apply MIL-L-6081, Grade 1010 corrosion preventive oil prior to storage.

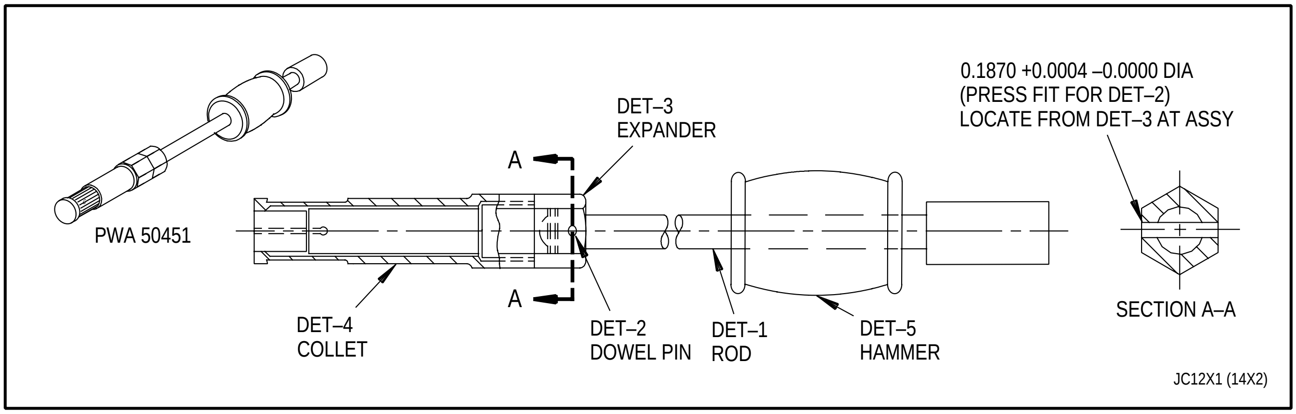


Figure 1. PWA 50451 Puller

Table 1. Serviceable and Replacement Limits

Frequency	Inspection Area	Inspection Method And Condition	Maximum Serviceable Limits	Maximum Reparable Limits	Corrective Action
Prior to use	Entire tool	Visual for nicks, burrs, broken, or missing details	None	None	Blend, use fine stone or fine file. Repair or replace missing details.
	Detail-1 rod	Visual for nicks or burrs that interfere with operation of tool or bent rod	None	None	Blend or replace.
	Detail-2 dowel pin	Damage	None	None	Replace.

Table 1. Serviceable and Replacement Limits (continued)

Frequency	Inspection Area	Inspection Method And Condition	Maximum Serviceable Limits	Maximum Reparable Limits	Corrective Action
Prior to use (continued)	Detail-3 expander	Visual for nicks and burrs	None	None	Blend or replace.
	Detail-4 collet	Visual for nicks, burrs, broken puller lip or segment	None	None	Blend or replace.
	Detail-5 hammer	Visual for nicks, burrs, or sharp edges	None	None	Blend or replace.
As required	Entire tool	Visual for coating	No bare spots allowed	None	Refurbish black oxide per AMS 2485 or equivalent.

WORK PACKAGE

TECHNICAL PROCEDURES

PWA 50459 WRENCH - GEARBOX TOWERSHAFT GEAR ROLLER BEARING RETAINING NUT

EFFECTIVITY: ENGINE MODEL F100-PW-229

LIST OF EFFECTIVE WP PAGES

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6 Blank	0				

REFERENCE MATERIAL REQUIRED

None

APPLICABLE TIME COMPLIANCE TECHNICAL ORDERS

None

CONSUMABLE MATERIALS

Nomenclature	Specification/Vendor Part Number
Cloth, lint-free	-
Oil, preservative	MIL-L-6081, Grade 1010
Solvent, petroleum	P-D-680, Type II

EXPENDABLE ITEMS

None

APPLICABLE SUPPORT EQUIPMENT

None

ILLUSTRATED SUPPORT EQUIPMENT

None

1. INTRODUCTION.

a. This work package contains instructions for maintenance of PWA 50459 wrench.

2. CLEANING.

a. Use soft bristle brush to loosen dirt and remove foreign material.

b. Remove grease using P-D-680, Type II cleaning solvent or equivalent. Wipe solvent from tool with clean, dry, lint-free cloth.

c. Dry with compressed air at 30 psig maximum discharge pressure.

3. INSPECTION.

(See Figure 1 and Table 1.)

a. Inspect PWA 50459 wrench. (See figure 1 and table 1.)

4. REPAIR/REPLACEMENT.

(See figure 1.)

NOTE

Complete disassembly and assembly instructions are provided for the tool, however, it is only necessary to disassemble tool to the extent of replacing or repairing worn or damaged details.

a. Disassembly.

(1) Remove four detail-2 teeth from detail-1 body by removing four detail-3 socket head capscrews.

b. Repair of details. Not applicable.

NOTE

Wrench teeth are identical on both ends and may be reversed if one end is bent, twisted, or damaged.

c. Assembly.

(1) Install four detail-2 teeth on detail-1 body and secure with four detail-3 socket head capscrews. Torque screws 20 to 22 pound-inches.

d. Apply MIL-L-6081, Grade 1010 corrosion protective oil prior to storage.

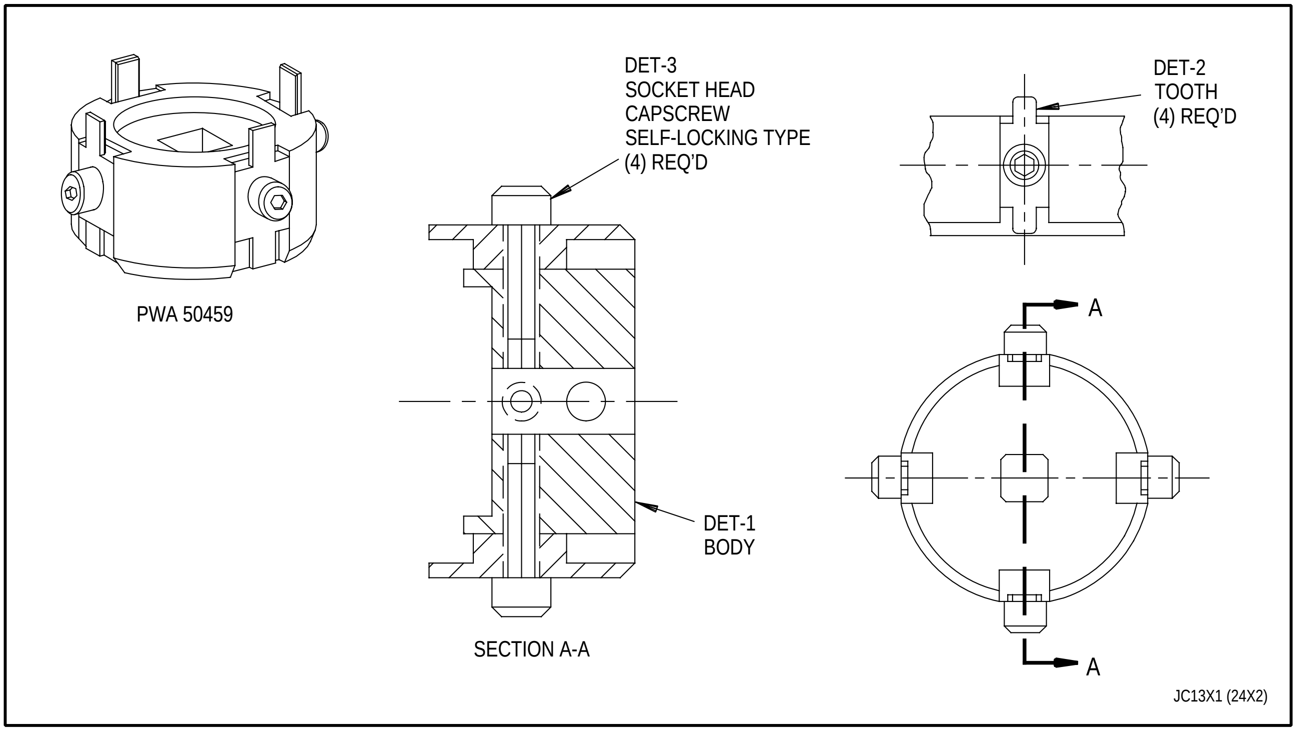


Figure 1. PWA 50459 Wrench

Table 1. Serviceable and Replacement Limits

Frequency	Inspection Area	Inspection Method And Condition	Maximum Serviceable Limits	Maximum Reparable Limits	Corrective Action
Prior to use	Entire tool	Visual for nicks, burrs, broken, or missing details	None	None	Blend, use fine stone or fine file. Repair or replace details.
	Detail-1 body	Visual for nicks, burrs, or thread damage	None	None	Blend or replace wrench.
	Detail-2 tooth	Visual for damage or broken condition	None	None	Reverse or replace tooth.
	Detail-3 socket head capscrews	Visual for thread or socket damage	None	None	Replace.
As required	Entire tool	Visual for coating	No bare spots allowed	None	Refurbish black oxide per AMS 2485 or equivalent.

WORK PACKAGE

TECHNICAL PROCEDURES

PWA 50515 FIXTURE - VARIABLE GUIDE VANE ACTUATOR CLEVIS POSITIONING

EFFECTIVITY: ENGINE MODEL F100-PW-229

LIST OF EFFECTIVE WP PAGES

Total Number of Pages in this WP is 6

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REFERENCE MATERIAL REQUIRED

None

APPLICABLE TIME COMPLIANCE TECHNICAL ORDERS

None

CONSUMABLE MATERIALS

Nomenclature	Specification/Vendor Part Number
Cloth, lint-free	-
Oil, preservative	MIL-L-6081, Grade 1010
Solvent, petroleum	P-D-680, Type II

EXPENDABLE ITEMS

None

APPLICABLE SUPPORT EQUIPMENT

None

ILLUSTRATED SUPPORT EQUIPMENT

None

1. INTRODUCTION.

a. This work package contains instructions for maintenance of PWA 50515 fixture.

2. CLEANING.

a. Use soft bristle brush to loosen dirt and remove foreign material.

b. Remove grease using P-D-680, Type II cleaning solvent or equivalent. Wipe solvent from tool with clean, dry, lint-free cloth.

c. Dry with compressed air at 30 psig maximum discharge pressure.

3. INSPECTION.

(See Figure 1 and Table 1.)

a. Inspect PWA 50515 fixture. (See figure 1 and table 1.)

4. REPAIR/REPLACEMENT.

(See figure 1.)

NOTE

Complete disassembly and assembly instructions are provided for the tool, however, it is only necessary to disassemble tool to the extent of replacing or repairing worn or damaged details.

a. Disassembly.

(1) Remove detail-10 socket setscrew that retains detail-7 dowel pin.

(2) Remove slip fit dowel pin from detail-1 base assembly.

(3) Remove detail-4 T-pin from clevis.

(4) Remove cable assembly by cutting sleeve lengthwise. Remove from T-pin. Remove cable from base assembly by removing detail-8 round head machine screw and detail-9 flat washer.

(5) Remove detail-2 pad assembly by removing two detail-5 socket head capscrews and detail-6 flat washers. Slide pad assembly out of slots.

(6) Remove two detail-3 sine keys from pad assembly by pressing or drifting keys from pad.

b. Repair of details. Not applicable.

c. Assembly.

(1) Install two detail-3 sine keys into pad assembly. Align flats with slots. (See figure 1.)

(2) Install two detail-6 flat washers and detail-5 socket head capscrews to secure pad assembly to base.

(3) Install detail-4 T-pin through clevis.

(4) Attach cable assembly to base assembly with detail-9 flat washer and detail-8 round head machine screw. Attach to T-pin through hole in pin and crimp sleeve.

(5) Install detail-7 dowel pin, slip fit into base assembly.

(6) Secure dowel pin with detail-10 socket setscrew. Tighten only enough to secure dowel pin.

d. Apply MIL-L-6081, Grade 1010 corrosion preventive oil prior to storage.

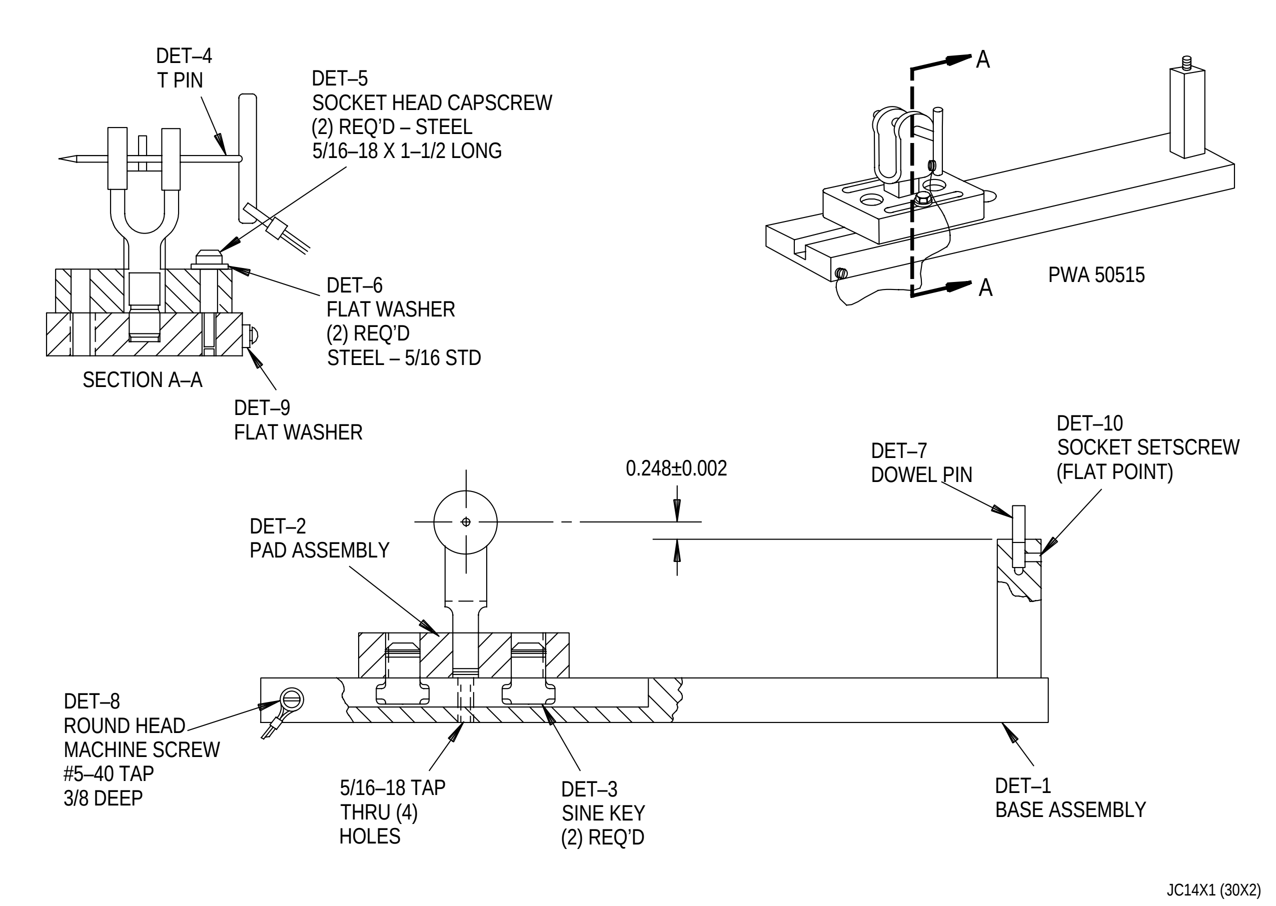


Figure 1. PWA 50515 Fixture

Table 1. Serviceable and Replacement Limits

Frequency	Inspection	Inspection Method and Condition	Maximum Serviceable Limits	Maximum Reparable Limits	Corrective Action
Prior to use	Entire tool	Visual for nicks, burrs, broken, or missing details	None	None	Blend, use fine stone or fine file. Repair or replace details.
	Detail-1 base assembly	Visual for nicks, burrs, slot damage, or thread damage	None	None	Blend or replace with NHA.

Table 1. Serviceable and Replacement Limits (continued)

Frequency	Inspection	Inspection Method and Condition	Maximum Serviceable Limits	Maximum Reparable Limits	Corrective Action
Prior to use (continued)	Detail-2 pad assembly	Visual for nicks, burrs, or bent clevis	None	None	Blend or replace with NHA.
	Detail-3 sine key	Visual for nicks, burrs, or thread damage	None	None	Blend or replace.
	Detail-4 T-pin	Visual for bent or broken condition	None	None	Replace.
	Detail-5, socket head capscrew	Visual for socket or thread damage	None	None	Replace.
	Detail-6, -9 flat washer	Damage	None	None	Replace.
	Detail-7 dowel pin	Visual for bent or damaged condition	None	None	Replace.
	Detail-8 round head machine screw	Visual for thread or screw slot damage	None	None	Replace.
	Detail-10 socket setscrew	Visual for socket or thread damage	None	None	Replace.
As required	Entire tool	Visual for coating	No bare spots allowed	None	Refurbish black oxide per AMS 2485 or equivalent.

WORK PACKAGE

TECHNICAL PROCEDURES

PWA 50603 ADAPTER - NO. 2 BEARING INNER RACE RETAINING NUT, COUNTERFORCE

EFFECTIVITY: ENGINE MODEL F100-PW-229

LIST OF EFFECTIVE WP PAGES

Total Number of Pages in this WP is 6

PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.
1 - 5	0				
6 Blank	0				

REFERENCE MATERIAL REQUIRED

None

APPLICABLE TIME COMPLIANCE TECHNICAL ORDERS

None

CONSUMABLE MATERIALS

Nomenclature	Specification/Vendor Part Number
Cloth, lint-free	-
Oil preservative	MIL-L-6081, Grade 1010
Solvent, petroleum	P-D-680, Type II

EXPENDABLE ITEMS

None

APPLICABLE SUPPORT EQUIPMENT

None

ILLUSTRATED SUPPORT EQUIPMENT

None

1. INTRODUCTION.

a. This work package contains instructions for maintenance of PWA 50603 adapter.

2. CLEANING.

a. Use soft bristle brush to loosen dirt and remove foreign material.

b. Remove grease using P-D-680, Type II cleaning solvent or equivalent. Wipe solvent form tool with clean, dry, lint-free cloth.

c. Dry with compressed air at 30 psig maximum discharge pressure.

3. INSPECTION.
(See Figure 1 and Table 1.)

a. Inspect PWA 50603 adapter. (See figure 1 and table 1.)

4. REPAIR/REPLACEMENT.
(See figure 1.)

a. Disassembly.

(1) Remove 10 detail-2 teeth from detail-4 adapter by removing 10 detail-3 socket head capscrews.

b. Repair of details. Not applicable.

NOTE

Adapter teeth are identical on both ends and may be reversed if one end is bent, twisted, or damaged.

c. Assembly.

(1) Install 10 detail-2 teeth in slots of detail-4 adapter.

(2) Secure teeth with 10 detail-3 socket head capscrews.

(3) Torque screws 20 to 22 pound-inches.

d. Apply MIL-L-6081, Grade 1010 corrosion preventive oil prior to storage.

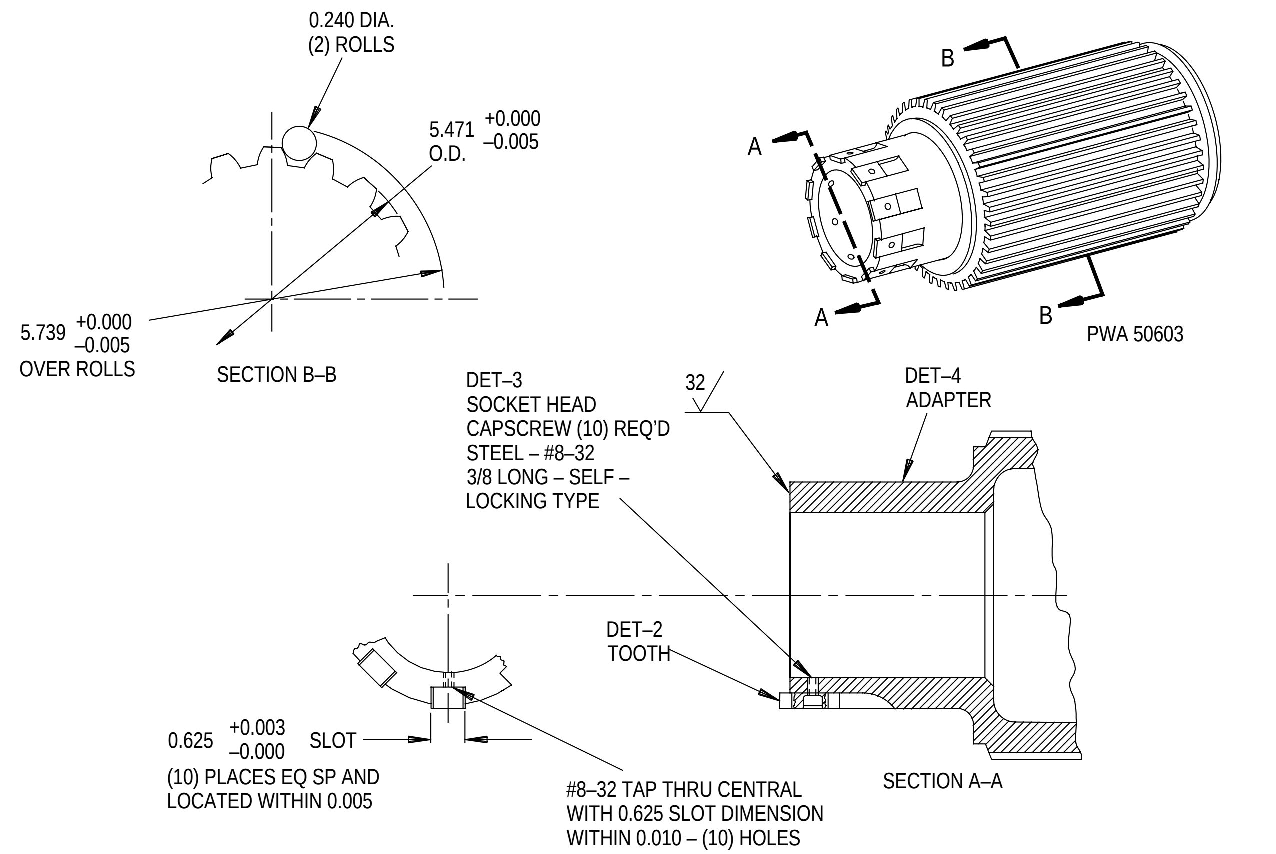


Figure 1. PWA 50603 Adapter

Table 1. Serviceable and Replacement Limits

Frequency	Inspection Area	Inspection Method and Condition	Maximum Serviceable Limits	Maximum Reparable Limits	Corrective Action
Prior to use	Entire tool	Visual for nicks, burrs, broken, or missing details	None	None	Blend, use fine stone or fine file. Repair or replace details.
	Detail-2 tooth	Visual for nicks, burrs, broken, or damaged end	None	None	Blend, reverse or replace tooth.
	Detail-3 socket head capscrew	Visual for thread or socket damage	None	None	Replace.
	Detail-4 adapter	Visual for nicks, burrs, thread or spline damage	None	None	Blend, chase threads, or replace adapter.
As required	Entire tool	Visual for coating	No bare spots allowed	None	Refurbish black oxide per AMS 2485 or equivalent.

WORK PACKAGE

TECHNICAL PROCEDURES

PWA 50604 WRENCH - NO. 2 BEARING INNER RACE RETAINING

EFFECTIVITY: ENGINE MODEL F100-PW-229

LIST OF EFFECTIVE WP PAGES

Total Number of Pages in this WP is 6

PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.
1 - 6	0				

REFERENCE MATERIAL REQUIRED

None

APPLICABLE TIME COMPLIANCE TECHNICAL ORDERS

None

CONSUMABLE MATERIALS

Nomenclature	Specification/Vendor Part Number
Cloth, lint-free	-
Oil, preservative	MIL-L-6081, Grade 1010
Solvent, petroleum	P-D-680, Type II

EXPENDABLE ITEMS

None

APPLICABLE SUPPORT EQUIPMENT

None

ILLUSTRATED SUPPORT EQUIPMENT

None

1. INTRODUCTION.

a. This work package contains instructions for maintenance of PWA 50604 wrench.

2. CLEANING.

a. Use soft bristle brush to loosen dirt and remove foreign material.

b. Remove grease using P-D-680, Type II cleaning solvent or equivalent. Wipe solvent from tool with clean, dry, lint-free cloth.

c. Dry with compressed air at 30 psig maximum discharge pressure.

3. INSPECTION.

(See Figure 1 and Table 1.)

a. Inspect PWA 50604 wrench. (See figure 1 and table 1.)

4. REPAIR/REPLACEMENT.

(See figure 1.)

NOTE

Complete disassembly and assembly instructions are provided for the tool, however, it is only necessary to disassemble tool to the extent of replacing or repairing worn or damaged details.

a. Disassembly.

(1) Remove 11 detail-2 teeth by removing 11 detail-3 socket head capscrews.

(2) If required, detail-4 bushing may be removed from detail-1 wrench assembly by pressing out using small arbor press and standard tooling.

b. Repair of details. Not applicable.

NOTE

Wrench teeth are identical on both ends and may be reversed if one end is bent, twisted, or damaged.

c. Assembly.

(1) If removed, install two replacement detail-4 bushings in detail-1 wrench assembly. Using small arbor press, install bushing until seated in recess.

(2) Install 11 detail-2 teeth. Secure with 11 detail-3 socket head capscrews. Torque screws 20 to 22 pound-inches.

d. Apply MIL-L-6081, Grade 1010 corrosion preventive oil prior to storage.

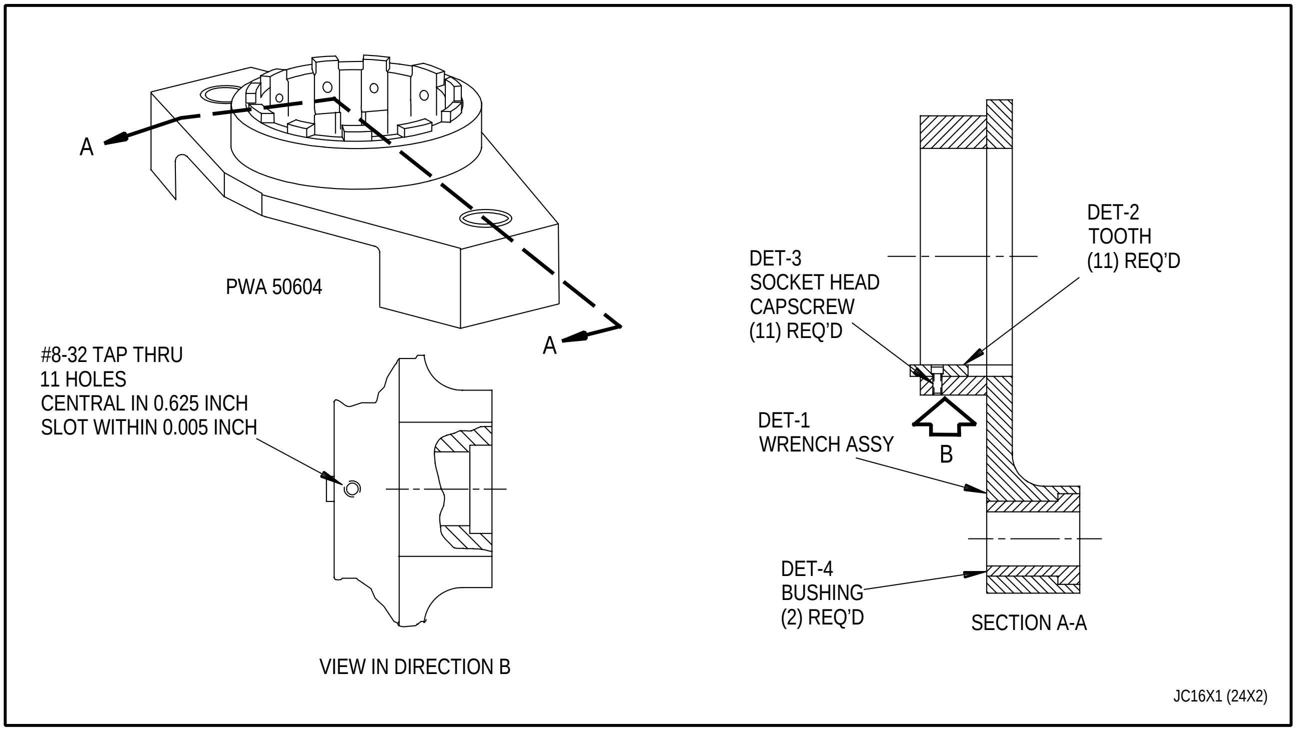


Figure 1. PWA 50604 Wrench

Table 1. Serviceable and Replacement Limits

Frequency	Inspection Area	Inspection Method And Condition	Maximum Serviceable Limits	Maximum Reparable Limits	Corrective Action
Prior to use	Entire tool	Visual for nicks, burrs, broken, or missing details	None	None	Blend, use fine stone or fine file. Repair or replace details.
	Detail-1 wrench assembly	Visual for nicks, burrs, thread damage, broken, or cracked welds	None	None	Blend or replace wrench.
	Detail-2 tooth	Visual for broken or damaged ends	None	None	Replace or reverse tooth.
	Detail-3 socket head capscrew	Visual for thread or socket damage	None	None	Replace.
	Detail-4 bushing	Visual for nicks, burrs, or ID damage	None	None	Blend or replace.
As required	Entire tool	Visual for coating	No bare spots allowed	None	Refurbish black oxide per AMS 2485 or equivalent.

WORK PACKAGE

TECHNICAL PROCEDURES

PWA 50607 PULLER - NO. 2 BEARING REAR SCOOP

EFFECTIVITY: ENGINE MODEL F100-PW-229

LIST OF EFFECTIVE WP PAGES

Total Number of Pages in this WP is 8

PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.
1 - 7	0				
8 Blank	0				

REFERENCE MATERIAL REQUIRED

Title		Number
Support Equipment and Numerical Tool List	-------------	T.O. 2J-F100-53-3
Hydraulic Cylinder Repair and Maintenance	-------------	WP 006 00

APPLICABLE TIME COMPLIANCE TECHNICAL ORDERS

None

CONSUMABLE MATERIALS

Nomenclature	Specification/Vendor Part Number
Cloth, lint-free	-
Oil, preservative	MIL-L-6081, Grade 1010
Solvent, petroleum	P-D-680, Type II
Tape, teflon	-

EXPENDABLE ITEMS

None

APPLICABLE SUPPORT EQUIPMENT

None

ILLUSTRATED SUPPORT EQUIPMENT

None

1. INTRODUCTION.

a. This work package contains instructions for maintenance of PWA 50607 puller.

2. CLEANING.

a. Use soft bristle brush to loosen dirt and remove foreign material.

b. Remove grease using P-D-680, Type II cleaning solvent or equivalent. Wipe solvent from tool with clean, dry, lint-free cloth.

c. Dry with compressed air at 30 psig maximum discharge pressure.

3. INSPECTION.

(See Figure 1 and Table 1.)

a. Inspect PWA 50607 puller. (See figure 1 and table 1.)

4. REPAIR/REPLACEMENT.

(See figure 1.)

NOTE

Complete disassembly and assembly instructions are provided for the tool, however, it is only necessary to disassemble tool to the extent of replacing or repairing worn or damaged details.

a. Disassembly.

(1) Remove detail-12 cable assembly by cutting crimped sleeves lengthwise.

(2) Remove detail-1 ring.

(3) Remove detail-11 jaw set by removing four detail-8 socket head capscrews, detail-9 washers, and removing jaws.

(4) Remove detail-10 retainer by extending detail-5 hydraulic cylinder to full extended position. Unthread retainer using a 5/16 punch or rod in 5/16 hole.

(5) Remove hydraulic cylinder from detail-4 plate by holding plate in vise jaws and using a strap wrench on cylinder barrel.

NOTE

Repair or replacement of detail-5 hydraulic cylinder is limited to parts itemized in repair kit. Refer to T.O. 2J-F100-53-3, WP 006 00 for repair or replacement instructions.

(6) Use wrenching flats on detail-13 coupler and remove two-piece coupler from cylinder barrel.

b. Repair of details. Not applicable.

c. Assembly.

(1) Install two-piece detail-13 coupler into threaded cylinder barrel if removed for any reason. Teflon thread tape is recommended, if available. Tighten firmly.

(2) Install detail-5 hydraulic cylinder into detail-4 plate. Thread should not be bottomed and cylinder should be free to rotate.

(3) Install detail-10 retainer into threaded end of hydraulic cylinder plunger. Tighten using 5/16 rod or punch. Extend plunger under pressure if required to keep plunger from rotating.

(4) Install detail-11 jaw set using four detail-9 washers and four detail-8 socket head capscrews. Seat jaw set against plate and tighten screws fingertight.

(5) Install detail-1 ring over jaw set.

(6) Install detail-12 cable assembly using new sleeves. Crimp sleeves securely. (See figure 1.)

d. Apply MIL-L-6081, Grade 1010 corrosion preventive oil prior to storage.

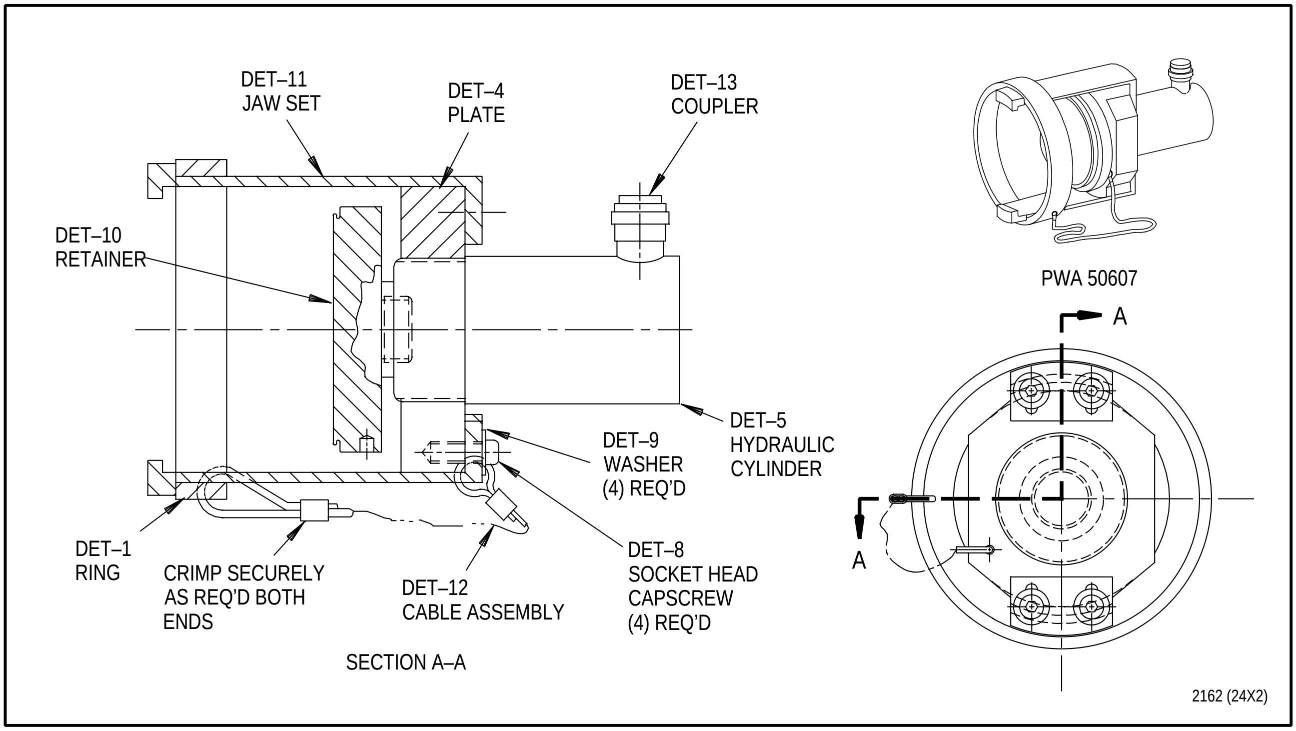


Figure 1. PWA 50607 Puller

Table 1. Serviceable and Replacement Limits

Frequency	Inspection Area	Inspection Method And Condition	Maximum Serviceable Limits	Maximum Reparable Limits	Corrective Action
Prior to use	Entire puller	Visual for nicks and burrs or broken or missing details	None	None	Blend, use stone or fine file or replace parts as required.
	Detail-1 ring	Visual for nicks, burrs, cracks, broken or excessive out-of-round	None	None	Blend or replace.
	Detail-4 plate	Visual for nicks and burrs	None	None	Blend.
		Stripped or damaged threads	None	None	Chase threads or replace.
	Detail-5 hydraulic cylinder	Visual for dents, leaks, or thread damage	None	None	Replace U-cups. Refer to T.O. 2J-F100-53-3, WP 006 00.
	Detail-8 socket head capscrews	Damage to threads or socket	None	None	Replace.
	Detail-9 washers	Damage	None	None	Replace.

Table 1. Serviceable and Replacement Limits (continued)

Frequency	Inspection Area	Inspection Method And Condition	Maximum Serviceable Limits	Maximum Reparable Limits	Corrective Action
Prior to use (continued)	Detail-10 retainer	Visual for nicks, burrs, or damage to threads	None	None	Blend or chase threads.
	Detail-11 jaw set	Visual for nicks, burrs, broken, or damaged puller lip	None	None	Blend or replace jaw.
	Detail-12 cable assembly	Visual for damaged or frayed cable	None	None	Replace.
	Detail-13 coupler	Leakage or pin or thread damage	None	None	Replace coupler. Refer to T.O. 2J-F100-53-3, WP 006 00.
As required	Entire tool	Visual for coating	No bare spots allowed	None	Refurbish black oxide per AMS 2485 or equivalent.

WORK PACKAGE

TECHNICAL PROCEDURES

PWA 50619 PULLER - NO. 3 BEARING AND GEAR ASSEMBLY

EFFECTIVITY: ENGINE MODEL F100-PW-229

LIST OF EFFECTIVE WP PAGES

Total Number of Pages in this WP is 8

PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.
1 - 8	0				

REFERENCE MATERIAL REQUIRED

Title		Number
Support Equipment and Numerical Tool List	- - - - - - - - - - -	T.O. 2J-F100-53-3
Hydraulic Cylinder Repair and Maintenance	- - - - - - - - - - -	WP 006 00

APPLICABLE TIME COMPLIANCE TECHNICAL ORDERS

None

CONSUMABLE MATERIALS

Nomenclature	Specification/Vendor Part Number
Cloth, lint-free	-
Oil, preservative	MIL-L-6081, Grade 1010
Solvent, petroleum	P-D-680, Type II
Tape, teflon	-

EXPENDABLE ITEMS

None

APPLICABLE SUPPORT EQUIPMENT

None

ILLUSTRATED SUPPORT EQUIPMENT

None

1. INTRODUCTION.

a. This work package contains instructions for maintenance of PWA 50619 puller.

2. CLEANING.

a. Use soft bristle brush to loosen dirt and remove foreign material.

b. Remove grease using P-D-680, Type II cleaning solvent or equivalent. Wipe solvent from tool with clean, dry, lint-free cloth.

c. Dry with compressed air at 30 psig maximum discharge pressure.

3. INSPECTION.

(See Figure 1 and Table 1.)

a. Inspect PWA 50619 puller. (See figure 1 and table 1.)

4. REPAIR/REPLACEMENT.

(See figure 1.)

NOTE

Complete disassembly and assembly instructions are provided for the tool, however, it is only necessary to disassemble tool to the extent of replacing or repairing worn or damaged details.

a. Disassembly.

(1) Move detail-12 retaining ring towards cylinder.

NOTE

Six screws retain jaws and six are in storage holes for use with PWA 50618.

(2) Remove 12 detail-10 socket head capscrews.

(3) Remove detail-11 jaw set.

(4) Remove six detail-8 spring plungers from jaw flanges by unthreading plungers.

(5) Remove three detail-9 flange nuts from posts.

(6) Remove three detail-5 posts by unthreading out of detail-1 plate. Use wrenching flats on post to loosen.

(7) Remove detail-3 adapter from cylinder threaded adapter saddle.

(8) Remove detail-7 threaded adapter saddle from cylinder plunger.

(9) Remove retaining ring by cutting crimped sleeve on detail-15 cable assembly lengthwise. Remove cable at end connected to part requiring rework.

(10) Remove detail-6 hydraulic cylinder from detail-2 plate. If necessary hold plate in vise jaws and use strap wrench on cylinder barrel.

NOTE

Repair or replacement of detail-6 hydraulic cylinder is limited to parts itemized in repair kit RC 102K. Refer to T.O. 2J-F100-53-3, WP 006 00 for repair or replacement instructions.

(11) Use wrenching flats on detail-16 coupler and remove two-piece coupler from cylinder barrel.

b. Repair of details. Not applicable.

c. Assembly.

(1) Install detail-16 coupler into threaded cylinder barrel if previously removed. Teflon thread tape is recommended if available. Tighten firmly with wrench.

(2) Install detail-2 plate onto detail-6 hydraulic cylinder. Thread should not be bottomed and cylinder should be free to rotate.

(3) Install detail-7 threaded adapter saddle handtight on cylinder plunger.

(4) Install detail-3 adapter handtight on saddle.

(5) Install three detail-5 posts into detail-1 plate and tighten using wrench flats.

(6) Install six detail-8 spring plungers into detail-11 jaw set flanges. Two per jaw with points facing puller lip.

(7) Install jaw set and secure fingertight with six detail-10 socket head capscrews.

(8) Install six equally spaced socket head capscrews fingertight (for use with PWA 50618) into storage holes in detail-1 plate.

(9) Install detail-12 retaining ring into jaws.

(10) Install threaded end of three posts through detail-2 plate.

(11) Install three detail-9 flange nuts and torque 600 to 650 pound-inches.

(12) Install detail-15 cable assembly. Install and crimp sleeves securely. (See figure 1.)

d. Apply MIL-L-6081, Grade 1010 corrosion preventive oil prior to storage.

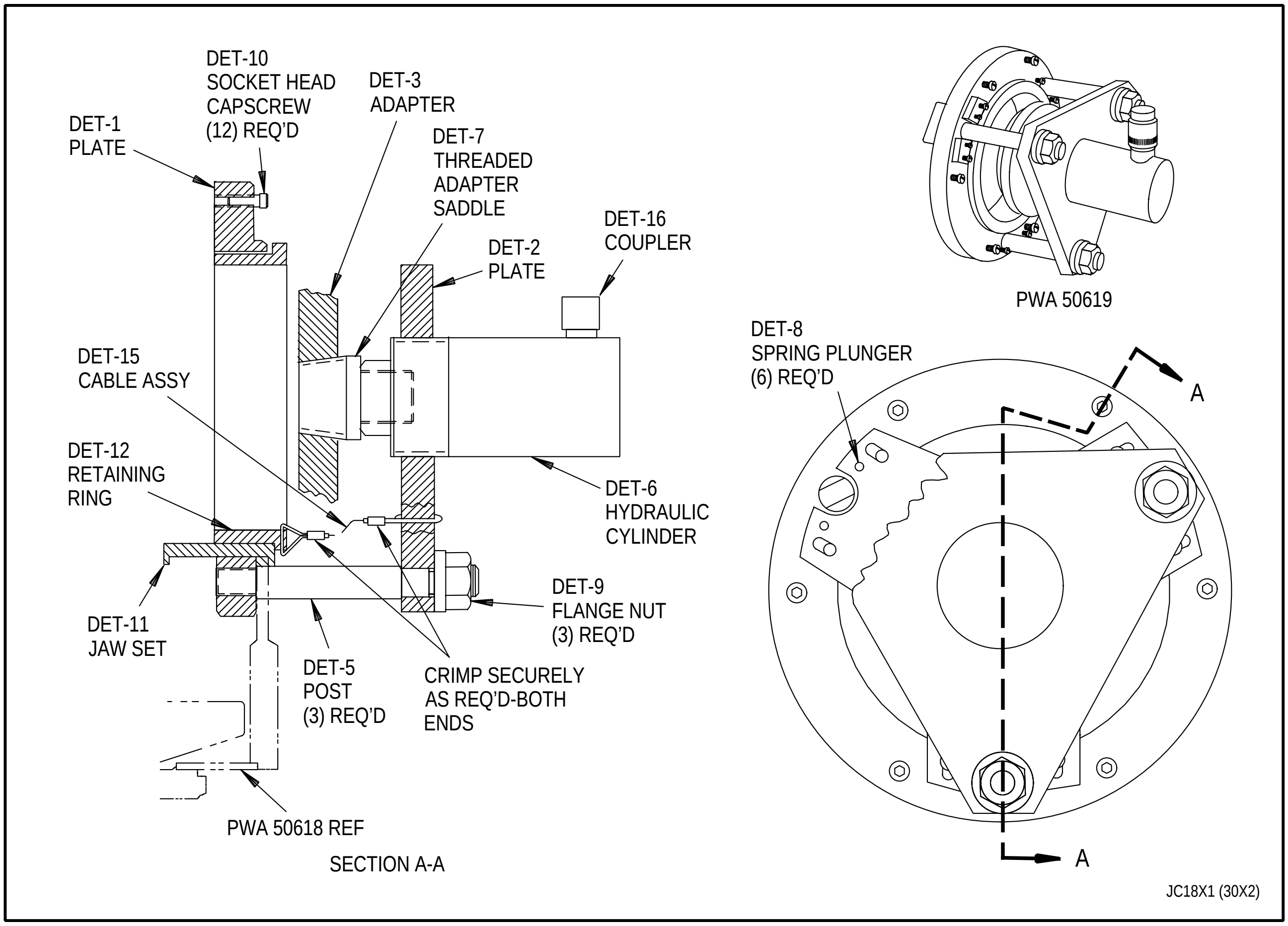


Figure 1. PWA 50619 Puller

Table 1. Serviceable and Replacement Limits

Frequency	Inspection Area	Inspection Method And Condition	Maximum Serviceable Limits	Maximum Reparable Limits	Corrective Action
Prior to use	Entire tool	Visual for nicks, burrs, damaged or missing details	None	None	Blend, use fine stone or fine file. Replace or repair as required.
	Detail-1 plate	Visual for nicks, burrs, and stripped or damaged threads	None	None	Blend, tap threads, or replace with NHA.
	Detail-2 plate	Visual for nicks, burrs, and sharp edges	None	None	Blend or replace with NHA.
	Detail-3 adapter	Visual for nicks, burrs, and sharp edges	None	None	Blend or replace with NHA.
	Detail-5 post	Visual for nicks, burrs, and damaged threads	None	None	Blend, chase threads, or replace with NHA.
	Detail-6 hydraulic cylinder	Visual for leakage or thread damage	None	None	Replace U-cups. Refer to T.O. 2J-F100-53-3, WP 006 00.
	Detail-7 threaded adapter saddle	Visual for thread damage	None	None	Chase threads or replace.

Table 1. Serviceable and Replacement Limits (continued)

Frequency	Inspection Area	Inspection Method And Condition	Maximum Serviceable Limits	Maximum Reparable Limits	Corrective Action
Prior to use (continued)	Detail-8 spring plunger	Loss of spring tension	None	None	Replace.
	Detail-9 flange nut	Visual for thread damage	None	None	Chase thread or replace.
	Detail-10 socket head capscrew	Visual for socket or thread damage	None	None	Replace.
	Detail-11 jaw set	Visual for nicks, burrs, cracks, or distortion	None	None	Blend or replace.
	Detail-12 retaining ring	Visual for nicks, burrs	None	None	Replace.
	Detail-15 cable assembly	Visual for frayed, broken, or damaged wire or covering	None	None	Replace.
	Detail-16 coupler	Leakage	None	None	Replace coupler. Refer to T.O. 2J-F100-53-3, WP 006 00.
As required	Entire tool	Visual for coating	No bare spots allowed	None	Refurbish black oxide per AMS 2485 or equivalent.

WORK PACKAGE

TECHNICAL PROCEDURES

PWA 50685 PULLER - GEARBOX DRIVE BEVEL GEARSHAFT ROLLER BEARING INNER RACE

EFFECTIVITY: ENGINE MODEL F100-PW-229

LIST OF EFFECTIVE WP PAGES

Total Number of Pages in this WP is 8

PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.
1 - 8	0				

REFERENCE MATERIAL REQUIRED

None

APPLICABLE TIME COMPLIANCE TECHNICAL ORDERS

None

CONSUMABLE MATERIALS

Nomenclature	Specification/Vendor Part Number
Cloth, lint free	-
Oil, preservative	MIL-L-6081, Grade 1010
Solvent, petroleum	P-D-680, Type II

EXPENDABLE ITEMS

None

APPLICABLE SUPPORT EQUIPMENT

None

ILLUSTRATED SUPPORT EQUIPMENT

None

1. INTRODUCTION.

a. This work package contains instructions for maintenance of PWA 50685 puller.

2. CLEANING.

a. Use soft bristle brush to loosen dirt and remove foreign material.

b. Remove grease using P-D-680, Type II cleaning solvent or equivalent. Wipe solvent from tool with clean, dry, lint-free cloth.

c. Dry with compressed air at 30 psig maximum discharge pressure.

3. INSPECTION.
(See Figure 1 and Table 1.)

a. Inspect PWA 50685 puller. (See figure 1 and table 1.)

4. REPAIR/REPLACEMENT.
(See figure 1.)

NOTE

Complete disassembly and assembly instructions are provided for the tool, however, it is only necessary to disassemble tool to the extent of replacing or repairing worn or damaged details.

a. Disassembly.

(1) Index mark knurled nuts and arms in sets.

(2) Use 1/8 inch punch to remove detail-7 dowel pins from detail-5 knurled nuts.

(3) Remove four knurled nuts from detail-1 arms.

(4) Remove four detail-3 spring plungers from detail-9 plate.

(5) Remove detail-1 arms from plate.

(6) Press out detail-8 dowel pin using 0.092 inch punch or rod. Remove detail-2 plug from detail-4 capscrew.

(7) Remove capscrew from plate.

b. Repair of details.

(1) Replace damaged detail-1 arm as follows:

(a) Install any existing arms not being replaced.

1 Adjust 2 9/16 inch dimension by adjusting detail-5 knurled nut on each arm. (See figure 1.) Install detail-7 dowel pin through nut and arm.

(b) Install new arm or arms through detail-9 plate.

(c) Install new or existing knurled nut.

(d) Adjust 2 9/16 inch dimension within 0.002 inch of existing arms using knurled nut.

(e) For existing nut, align hole in nut or nuts in same plane as puller lip.

(f) Index mark arm to nut with scribe or equivalent.

(g) Clamp arm in drill vise.

(h) Transfer drill through existing dowel pin hole in nut and through arm using a 0.1245 inch drill. (See figure 1.)

(i) When using new nut and new arm set 2 9/16 inch dimension and drill through both details using 3/32 inch drill. Remove details and enlarge hole in nut and arm. (See figure 1.) Reinstall arm and nut.

(j) Install four dowel pins. (See figure 1.)

c. Assembly.

(1) Install detail-4 capscrew through wrench holding nut and thread through detail-9 plate.

(2) Install detail-2 plug on capscrew.

(3) Press detail-8 dowel pin through hole in plug to engage groove in capscrew. Plug should be free to rotate and align as necessary in use.

(4) Install detail-1 arms through detail-9 plate.

(5) Install detail-5 knurled nuts on arms in sets as indexed at disassembly.

(6) Press in four detail-7 dowel pins. (See figure 1.)

(7) Install four detail-3 spring plungers in plate. Align with drill point recess in arms.

d. Apply MIL-L-6081, Grade 1010 corrosion preventive oil prior to storage.

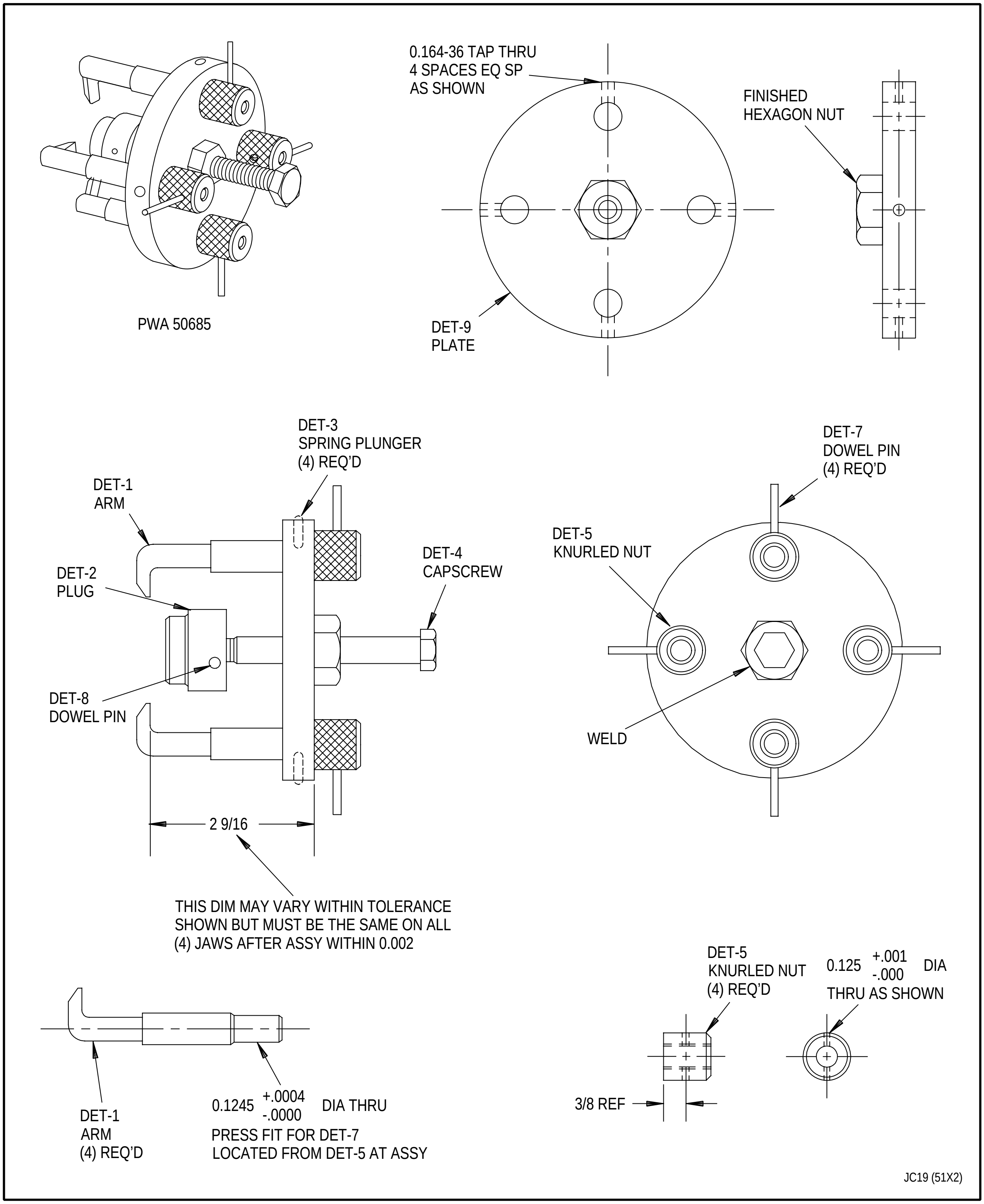


Figure 1. PWA 50685 Puller

Table 1. Serviceable and Replacement Limits

Frequency	Inspection Area	Inspection Method And Condition	Maximum Serviceable Limits	Maximum Reparable Limits	Corrective Action
Prior to use	Entire tool	Visual for nicks, burrs, missing or broken detail	None	None	Blend, use fine stone or fine file. Replace or repair as required.
	Detail-1 arm	Visual for distortion or arm puller lip	None	None	Replace or repair.
	Detail-2 plug	Visual for nicks, burrs, or galled material. Freedom of alignment movement on screw	None	None	Blend or replace.
	Detail-3 spring plunger	Loss of spring action	None	None	Replace.
	Detail-4 capscrew	Visual for damaged threads or bent screw	None	None	Chase threads or replace.
	Detail-5 knurled nut	Visual for nicks, burrs, or sharp edges	None	None	Blend or replace.
	Detail-7 dowel pins	Visual for bent or missing	None	None	Realign with puller arm or replace.
	Detail-8 dowel pin	Visual for looseness	None	None	Replace.
	Detail-9 plate	Visual for nicks, burrs, or thread damage	None	None	Tap to clear thread damage. Replace.

Table 1. Serviceable and Replacement Limits (continued)

Frequency	Inspection Area	Inspection Method And Condition	Maximum Serviceable Limits	Maximum Reparable Limits	Corrective Action
As required	Detail-1 arm	Dimensional inspection for distortion	2 9/16 inch may vary within tolerance but shall be equal within 0.002 inch four places	None	Replace.
	Detail-4 capscrew	Physically for freedom of thread run	Shall turn by hand	None	Replace.
	Detail-9 plate	FPI or visually inspect for cracks in holding nut weld	None	None	Replace.
	Entire tool	Visual for coating	No bare spots allowed	None	Refurbish black oxide per AMS 2485 or equivalent.

WORK PACKAGE

TECHNICAL PROCEDURES

PWA 50696 WRENCH - GEARBOX DRIVE BEVEL GEARSHAFT BALL BEARING OUTER RACE RETAINING NUT

EFFECTIVITY: ENGINE MODEL F100-PW-229

LIST OF EFFECTIVE WP PAGES

Total Number of Pages in this WP is 6

PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.
1 - 6	0				

REFERENCE MATERIAL REQUIRED

None

APPLICABLE TIME COMPLIANCE TECHNICAL ORDERS

None

CONSUMABLE MATERIALS

Nomenclature	Specification/Vendor Part Number
Cloth, lint free	-
Oil, preservative	MIL-L-6081, Grade 1010
Solvent, petroleum	P-D-680, Type II

EXPENDABLE ITEMS

None

APPLICABLE SUPPORT EQUIPMENT

None

ILLUSTRATED SUPPORT EQUIPMENT

None

1. INTRODUCTION.

a. This work package contains instructions for maintenance of PWA 50696 wrench.

2. CLEANING.

a. Use soft bristle brush to loosen dirt and remove foreign material.

b. Remove grease using P-D-680, Type II cleaning solvent or equivalent. Wipe solvent from tool with clean, dry, lint-free cloth.

c. Dry with compressed air at 30 psig maximum discharge pressure.

3. INSPECTION.

(See Figure 1 and Table 1.)

a. Inspect PWA 50696 wrench. (See figure 1 and table 1.)

4. REPAIR/REPLACEMENT.

(See figure 1.)

NOTE

Complete disassembly and assembly instructions are provided for the tool, however, it is only necessary to disassemble tool to the extent of replacing or repairing worn or damaged details.

a. Disassembly.

(1) Remove five detail-2 teeth from detail-1 body by removing five detail-3 socket head capscrews. Separate details.

b. Repair of details. Not applicable.

NOTE

Wrench teeth are identical on both ends and may be reversed if one end is worn or damaged.

c. Assembly.

(1) Install five detail-2 teeth in slots of detail-1 body. Secure with five detail-3 socket head capscrews. Torque screws 27 to 30 pound-inches.

d. Apply MIL-L-6081, Grade 1010 corrosion preventive oil prior to storage.

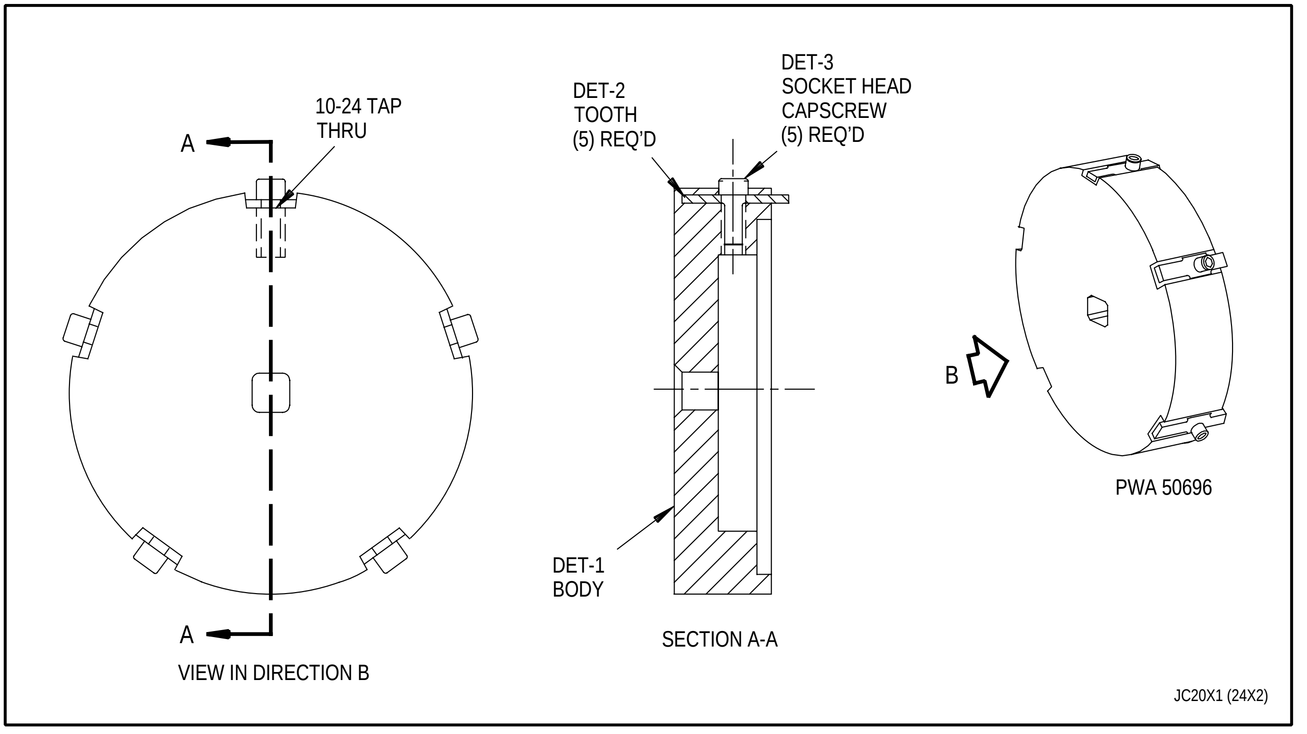


Figure 1. PWA 50696 Wrench

Table 1. Serviceable and Replacement Limits

Frequency	Inspection Area	Inspection Method And Condition	Maximum Serviceable Limits	Maximum Reparable Limits	Corrective Action
Prior to use	Entire tool	Visual for nicks, burrs, missing or broken detail	None	None	Blend, use fine stone or fine file. Repair or replace details.
	Detail-1 body	Visual for nicks, burrs, or thread damage	None	None	Blend or replace wrench.
	Detail-2 teeth	Visual for nicks, burrs, or broken ends	None	None	Blend, reverse or replace tooth.
	Detail-3 socket head capscrew	Visual for thread or socket damage	None	None	Replace.
	Entire tool	Visual for coating	No bare spots allowed	None	Refurbish black oxide per AMS 2485 or equivalent.

WORK PACKAGE

TECHNICAL PROCEDURES

PWA 50699 WRENCH - GEARBOX DRIVE BEVEL GEARSHAFT BALL BEARING INNER RACE RETAINING NUT

EFFECTIVITY: ENGINE MODEL F100-PW-229

LIST OF EFFECTIVE WP PAGES

Total Number of Pages in this WP is 6

PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.
1 - 6	0				

REFERENCE MATERIAL REQUIRED

None

APPLICABLE TIME COMPLIANCE TECHNICAL ORDERS

None

CONSUMABLE MATERIALS

Nomenclature	Specification/Vendor Part Number
Cloth, lint free	-
Oil, preservative	MIL-L-6081, Grade 1010
Solvent, petroleum	P-D-680, Type II

EXPENDABLE ITEMS

None

APPLICABLE SUPPORT EQUIPMENT

None

ILLUSTRATED SUPPORT EQUIPMENT

None

1. INTRODUCTION.

a. This work package contains instructions for maintenance of PWA 50699 wrench.

2. CLEANING.

a. Use soft bristle brush to loosen dirt and remove foreign material.

b. Remove grease using P-D-680, Type II cleaning solvent or equivalent. Wipe solvent from tool with clean, dry, lint-free cloth.

c. Dry with compressed air at 30 psig maximum discharge pressure.

3. INSPECTION.

(See Figure 1 and Table 1.)

a. Inspect PWA 50699 wrench. (See figure 1 and table 1.)

4. REPAIR/REPLACEMENT.

(See figure 1.)

NOTE

Complete disassembly and assembly instructions are provided for the tool, however, it is only necessary to disassemble tool to the extent of replacing or repairing worn or damaged details.

a. Disassembly.

(1) Remove four detail-3 teeth from detail-5 body by removing four detail-4 socket head capscrews. Separate details.

(2) Remove detail-1 immobilizer by pressing or drifting out detail-6 dowel pin that retains immobilizer to body. Separate details.

(3) Remove detail-2 pilot by pressing or drifting out detail-6 dowel pin which retains pilot to immobilizer. Separate details.

b. Repair of details.

NOTE

Wrench teeth are identical on both ends and may be reversed if one end is bent, twisted, or damaged.

(1) Replacement of detail-2 pilot will require transfer drilling of detail-6 dowel pin hole from detail-1 immobilizer. (See figure 1.)

c. Assembly.

(1) Install detail-2 pilot on detail-1 immobilizer.

(2) Press in detail-6 dowel pin to secure pilot to immobilizer.

(3) Install detail-1 immobilizer and pilot as an assembly through from teeth side of detail-5 body.

(4) Install second detail-6 dowel pin through body to retain immobilizer.

(5) Install four detail-3 teeth in slots of detail-5 body and secure with four detail-4 socket head capscrews. Torque screws 27 to 30 pound-inches.

d. Apply MIL-L-6081, Grade 1010 corrosion preventive oil prior to storage.

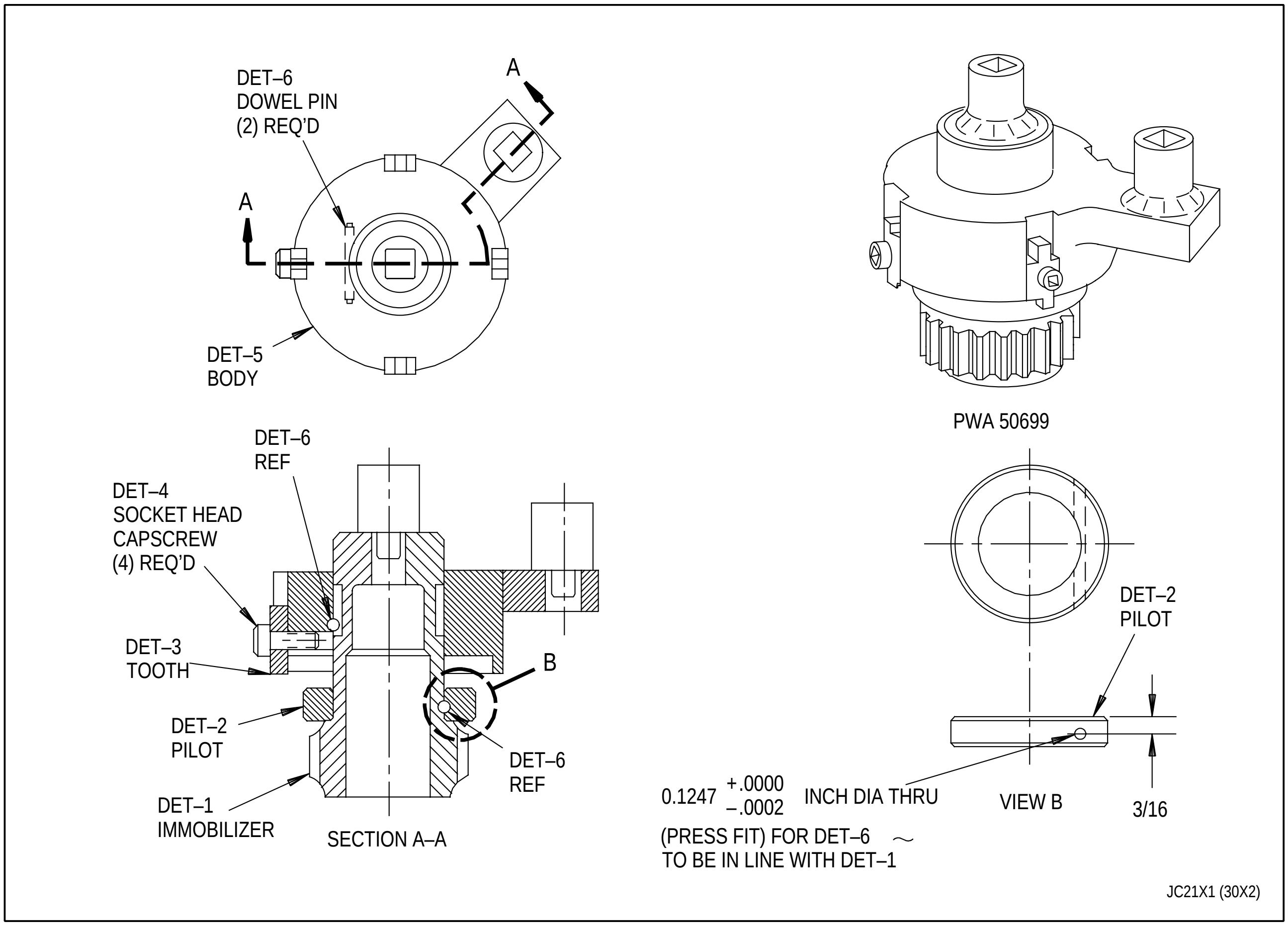


Figure 1. PWA 50699 Wrench

Table 1. Serviceable and Replacement Limits

Frequency	Inspection Area	Inspection Method And Condition	Maximum Serviceable Limits	Maximum Reparable Limits	Corrective Action
Prior to use	Entire tool	Visual for nicks, burrs, missing or broken details	None	None	Blend, use fine stone or fine file. Repair or replace details.
	Detail-1 immobilizer	Visual for nicks, burrs, or rounded square	None	None	Blend or replace.
	Detail-2 pilot	Visual for nicks or burrs	None	None	Blend or replace.
	Detail-3 tooth	Visual for nicks, burrs, or damaged end	None	None	Blend, reverse or replace tooth.
	Detail-4 socket head capscrew	Visual for thread or socket damage	None	None	Replace.
	Detail-5 body	Visual for nicks, burrs, or socket damage	None	None	Blend or replace.
	Detail-6 dowel pin	Damage	None	None	Replace.
As required	Entire tool	Visual for coating	No bare spots allowed	None	Refurbish black oxide per AMS 2485 or equivalent.

WORK PACKAGE

TECHNICAL PROCEDURES

PWA 50701 PULLER - GEARBOX DRIVE BEARING HOUSING

EFFECTIVITY: ENGINE MODEL F100-PW-229

LIST OF EFFECTIVE WP PAGES

Total Number of Pages in this WP is 8

PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.
1 - 8	0				

REFERENCE MATERIAL REQUIRED

None

APPLICABLE TIME COMPLIANCE TECHNICAL ORDERS

None

CONSUMABLE MATERIALS

Nomenclature	Specification/Vendor Part Number
Cloth, lint free	-
Oil, preservative	MIL-L-6081, Grade 1010
Solvent, petroleum	P-D-680, Type II

EXPENDABLE ITEMS

None

APPLICABLE SUPPORT EQUIPMENT

None

ILLUSTRATED SUPPORT EQUIPMENT

None

1. INTRODUCTION.

a. This work package contains instructions for maintenance of PWA 50701 puller.

2. CLEANING.

a. Use soft bristle brush to loosen dirt and remove foreign material.

b. Remove grease using P-D-680, Type II cleaning solvent or equivalent. Wipe solvent from tool with clean, dry, lint-free cloth.

c. Dry with compressed air at 30 psig maximum discharge pressure.

3. INSPECTION.

(See Figure 1 and Table 1.)

a. Inspect PWA 50701 puller. (See figure 1 and table 1.)

4. REPAIR/REPLACEMENT.

(See figure 1.)

NOTE

Complete disassembly and assembly instructions are provided for the tool, however, it is only necessary to disassemble tool to the extent of replacing or repairing worn or damaged details.

a. Disassembly.

(1) Remove two detail-6 hexagon nuts and two detail-5 washers that retain split clamp assembly to strap and slide hammer assembly.

(2) Remove detail-1 split clamp and stud assembly from strap.

NOTE

See repair of details paragraph for further disassembly of split clamp.

(3) Remove detail-7 hexagon nut from shaft rod.

(4) Remove detail-4 strap by unscrewing from short rod.

(5) Remove detail-8 sliding hammer from detail-9 short rod.

(6) Remove detail-10 dowel (if required) by grinding tack welds.

b. Repair of details.

NOTE

When replacing detail-1 split clamp, also replace two detail-3 studs and two detail-2 dowel pins. Studs may be replaced in used split clamp as required.

(1) Disassemble or repair split clamp as follows:

(a) Remove detail-16 hexagon nut and detail-14 washer from swing bolt.

(b) Remove detail-15 swing bolt from split clamp by pressing out detail-12 dowel pin. Install replacement swing bolt and press through replacement detail-12 dowel pin.

(c) Remove detail-11 link by pressing out detail-13 dowel pin and two detail-12 dowel pins. Separate details.

(d) When replacing link, transfer drill holes from detail-1 split clamp through new link. Maintain gap between split clamp halves. (See figure 1.)

(e) When replacing split clamp, clamp existing link to surface of split clamp and transfer drill dowel holes through replacement split clamp. (See figure 1.) Maintain gap between split clamp halves.

(f) When replacing both link and split clamp, drill to dimensions specified. (See figure 1.) Parts may be drilled in detail or as assembly.

(g) Install replacement detail-3 studs into used or replaced split clamp. Bottom shoulder of studs. Transfer drill detail-2 dowel pin hole through stud from existing split clamp or locate and drill dowel pin hole in replacement split clamp. (See figure 1.)

c. Assembly.

(1) If detail-10 dowel was removed, tack weld dowel to end of short rod.

(2) Install detail-8 sliding hammer on detail-9 short rod.

(3) Install detail-4 strap on threaded end of short rod.

(4) Install detail-7 hexagon nut. Torque nut against strap 850 to 950 pound-inches.

(5) Install split clamp assembly to detail-4 strap.

(6) Secure clamp assembly to strap with two detail-5 washers and two detail-6 hexagon nuts.

d. Apply MIL-L-6081, Grade 1010 corrosion preventive oil prior to storage.

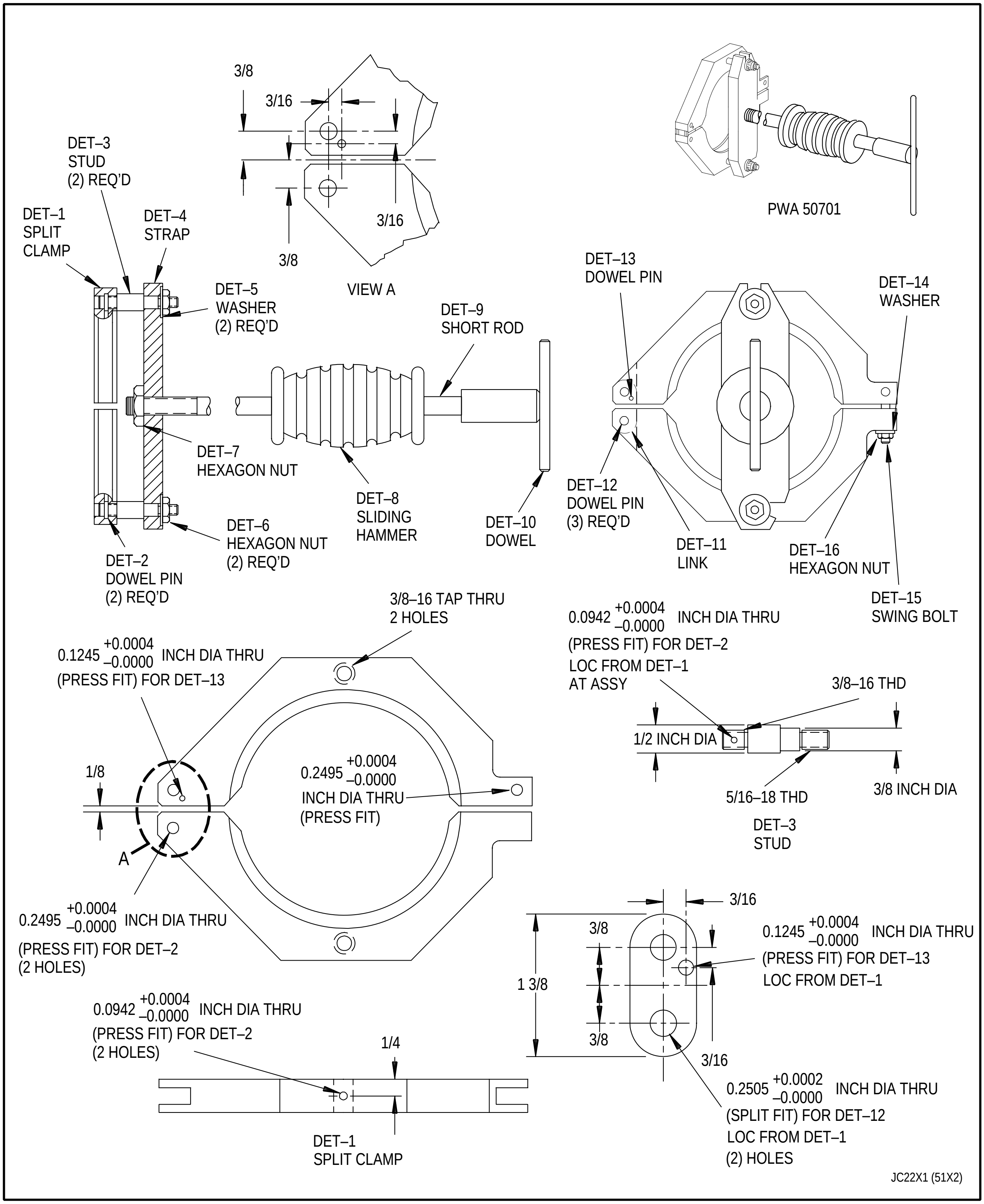


Figure 1. PWA 50701 Puller

Table 1. Serviceable and Replacement Limits

Frequency	Inspection Area	Inspection Method And Condition	Maximum Serviceable Limits	Maximum Reparable Limits	Corrective Action
Prior to use	Entire tool	Visual for nicks, burrs, missing or broken details	None	None	Blend, use fine stone or fine file. Repair or replace details.
	Detail-1 split clamp	Visual for nicks, burrs, or thread damage	None	None	Blend or replace.
	Detail-2, -12, -13 dowel pin	Visual for damage	None	None	Replace.
	Detail-3 stud	Visual for nicks, burrs, or thread damage	None	None	Replace.
	Detail-4 strap	Visual for nicks and burrs	None	None	Blend or replace.
	Detail-5, -14 washer	Damage	None	None	Replace.
	Detail-6, -7, -16 hexagon nut	Visual for thread damage or rounded wrench flats	None	None	Replace.
	Detail-8 sliding hammer	Visual for nicks, burrs, or sharp edges	None	None	Blend or replace.

Table 1. Serviceable and Replacement Limits (continued)

Frequency	Inspection Area	Inspection Method And Condition	Maximum Serviceable Limits	Maximum Reparable Limits	Corrective Action
Prior to use (Continued)	Detail-9 short rod	Visual for nicks, burrs, bent rod or pulled threads	None	None	Blend or replace.
	Detail-11 link	Visual for nicks, burrs, or bends	None	None	Blend or replace.
	Detail-15 swing bolt	Visual for nicks, burrs, bent or damaged threads	None	None	Blend or replace.
As required	Entire tool	Visual for coating	No bare spots allowed	None	Refurbish black oxide per AMS 2485 or equivalent.

WORK PACKAGE

TECHNICAL PROCEDURES

PWA 50950 PULLER - LOW TURBINE SHAFT STIFFENERS

EFFECTIVITY: ENGINE MODEL F100-PW-229

LIST OF EFFECTIVE WP PAGES

Total Number of Pages in this WP is 10

PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.
1 - 9	0				
10 Blank	0				

REFERENCE MATERIAL REQUIRED

None

APPLICABLE TIME COMPLIANCE TECHNICAL ORDERS

None

CONSUMABLE MATERIALS

Nomenclature	Specification/Vendor Part Number
Cloth, lint-free	-
Oil, preservative	MIL-L-6081, Grade 1010
Solvent, petroleum	P-D-680, Type II

EXPENDABLE ITEMS

None

APPLICABLE SUPPORT EQUIPMENT

None

ILLUSTRATED SUPPORT EQUIPMENT

None

1. INTRODUCTION.

a. This work package contains instructions for maintenance of PWA 50950 puller.

2. CLEANING.

a. Use soft bristle brush to loosen dirt and remove foreign material.

b. Remove grease using P-D-680, Type II cleaning solvent or equivalent. Wipe solvent from tool with clean, dry, lint-free cloth.

c. Dry with compressed air at 30 psig maximum discharge pressure.

3. INSPECTION.

(See Figure 1 and Table 1.)

a. Inspect PWA 50950 puller. (See figure 1 and table 1.)

4. REPAIR/REPLACEMENT.

(See figure 1.)

NOTE

Complete disassembly and assembly instructions are provided for the tool, however, it is only necessary to disassemble tool to the extent of replacing or repairing worn or damaged details.

a. Disassembly.

(1) Remove four detail-5 socket head capscrews that retain detail-16 bar and detail-18 plate. Remove bar and plate from detail-4 ring.

(2) Remove detail-8 knurled nut which retains tube from detail-9 rod.

(3) Pull out or drill out detail-11 dowel pin protruding from tube lock slot.

(4) Remove detail-3 tube from rod.

(5) Remove detail-7 nut from tube.

(6) Remove detail-14 wrench assembly.

(7) Remove two detail-26 machine bolts from detail-2 puck by unscrewing through puck or remove two detail-12 guide pins as applicable.

(8) Remove detail-20 cam from puck.

(9) Remove two detail-24 coil springs and four detail-25 socket head capscrews from jaws.

(10) Remove two detail-21 socket head capscrews that retain jaws.

(11) Remove two detail-19 jaws.

(12) Remove detail-11 dowel pin that retains puck to rod. Drift out dowel pin and separate details.

b. Repair of details. Not applicable.

c. Assembly.

(1) Install detail-2 puck on detail-9 rod. Install detail-11 dowel pin and press through both sides of rod. Pin is slip fit in puck. Puck shall be free to move after installation of pin. Stake pin securely.

(2) Install detail-19 jaws on puck. Retain with two detail-21 socket head capscrews.

(3) Install two detail-24 coil springs, one on each side of jaws. Retain with detail-25 socket head capscrews. Torque screws 5 to 6 pound-inches.

(4) Install detail-20 cam between jaws and thread into puck.

(5) Install detail-26 machine bolts, or detail-12 guide pins, into threaded holes in puck. Store detail not used in box.

(6) Install detail-3 tube over rod, threaded area nearest to puck.

(7) Align slot in tube with pin hole in rod. Install detail-11 dowel pin by pressing through tube slot into tight hole in rod. Leave pin 1/8 inch above tube OD. Tube shall move free the length of slot.

(8) Install detail-7 nut on tube threads.

(9) Install detail-18 plate, detail-16 bar, and detail-4 ring. Retain with four detail-5 socket head capscrews.

(10) Install detail-8 knurled nut on detail-9 rod.

(11) Store detail-14 wrench assembly with remainder of tool.

d. Apply MIL-L-6081, Grade 1010 corrosion preventive oil prior to storage.

e. Store complete tool in detail-13 protective box.

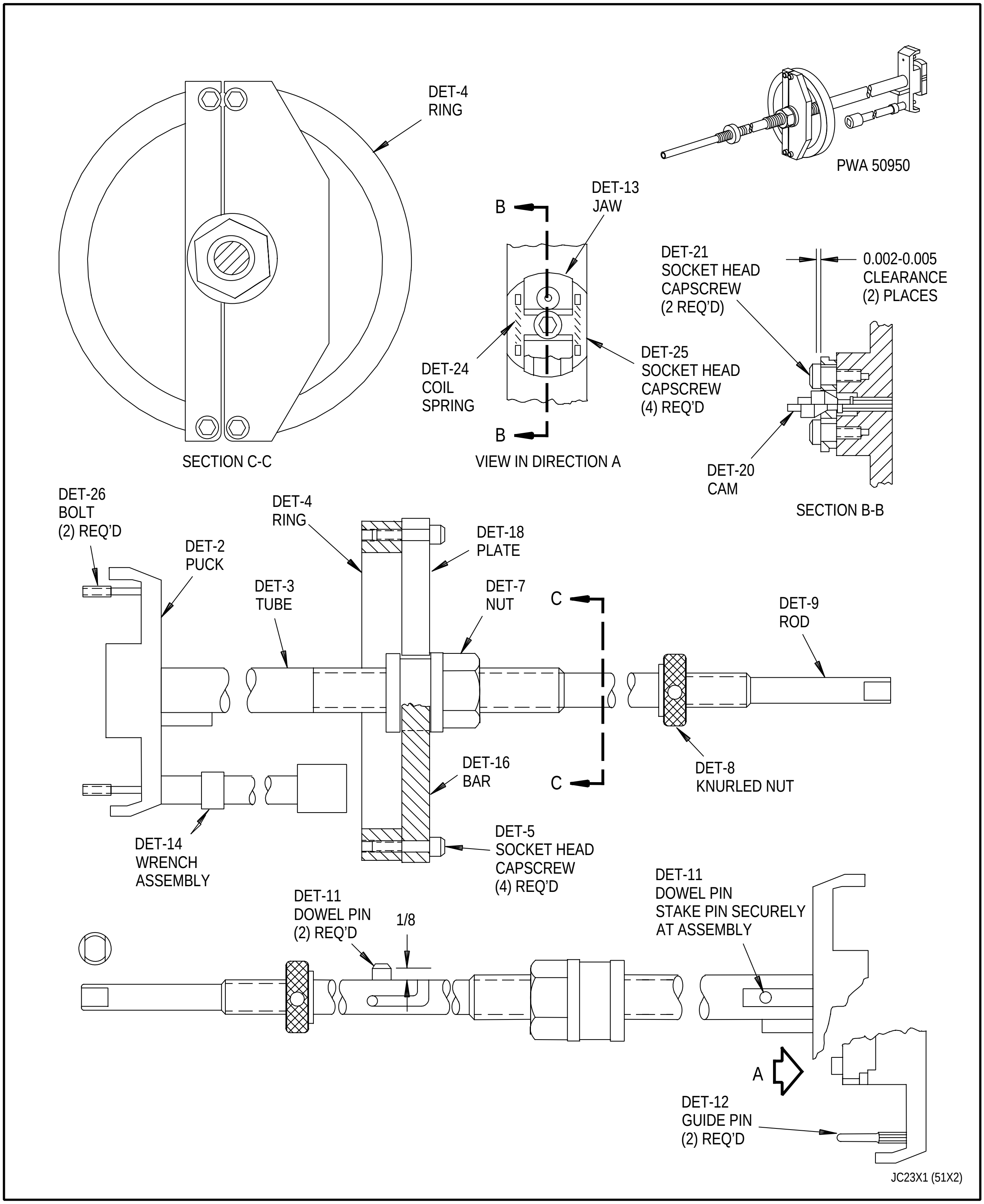


Figure 1. PWA 50950 Puller

Table 1. Serviceable and Replacement Limits

Frequency	Inspection Area	Inspection Method And Condition	Maximum Serviceable Limits	Maximum Reparable Limits	Corrective Action
Prior to use	Entire tool	Visual for nicks, burrs, broken or missing details	None	None	Blend, use fine stone or fine file. Repair or replace missing details.
	Detail-2 puck	Visual for nicks, burrs, or damaged threads	None	None	Blend, chase threads or replace with NHA.
	Detail-3 tube	Visual for nicks, burrs, damage to ID or pin slot, thread damage	None	None	Blend or replace.
	Detail-4 ring	Visual for nicks or burrs	None	None	Blend or replace with NHA.
	Detail-5, -21, -25 socket head capscrew	Visual for damage to socket or threads	None	None	Replace.
	Detail-7 nut	Visual for damage to threads or surface finish metal pickup	None	None	Blend or replace.
	Detail-8 knurled nut	Visual for damage to threads	None	None	Blend or replace.

Table 1. Serviceable and Replacement Limits (continued)

Frequency	Inspection Area	Inspection Method And Condition	Maximum Serviceable Limits	Maximum Reparable Limits	Corrective Action
Prior to use (continued)	Detail-9 rod	Visual for damage to threads, bent rod, or damaged dowel pin holes	None	None	Replace.
	Detail-11 dowel pin	Damage	None	None	Replace.
	Detail-12 guide pin	Visual for nicks, burrs, or bent pin	None	None	Blend or replace.
	Detail-14 wrench assembly	Visual for rounded wrench flats	None	None	Replace.
	Detail-16 bar	Visual for nicks, burrs, or ID finish damage	None	None	Blend or replace with NHA.
	Detail-18 plate	Visual for nicks, burrs, or ID finish damage	None	None	Blend or replace with NHA.
	Detail-19 jaw	Visual for nicks, burrs, broken, or bent puller-lip	None	None	Blend or replace.

Table 1. Serviceable and Replacement Limits (continued)

Frequency	Inspection Area	Inspection Method And Condition	Maximum Serviceable Limits	Maximum Reparable Limits	Corrective Action
Prior to use (continued)	Detail-20 cam	Visual for nicks, burrs, damaged surface of taper, thread damage	None	None	Blend or replace.
	Detail-24 coil spring	Loss of tension	None	None	Replace.
	Detail-26 bolt	Visual for thread damage	None	None	Replace.
As required	Entire tool	Visual for coating	No bare spots allowed	None	Refurbish black oxide per AMS 2485 or equivalent.
	Storage box	Visual for damage	Serviceable	None	Repaint.

WORK PACKAGE

TECHNICAL PROCEDURES

PWA 50971 WRENCH - NO. 4 BEARING OUTER RACE RETAINING NUT

EFFECTIVITY: ENGINE MODEL F100-PW-229

LIST OF EFFECTIVE WP PAGES

Total Number of Pages in this WP is 6

PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.
1 - 6	0				

REFERENCE MATERIAL REQUIRED

None

APPLICABLE TIME COMPLIANCE TECHNICAL ORDERS

None

CONSUMABLE MATERIALS

Nomenclature	Specification/Vendor Part Number
Cloth, lint free	-
Oil, preservative	MIL-L-6081, Grade 1010
Solvent, petroleum	P-D-680, Type II

EXPENDABLE ITEMS

None

APPLICABLE SUPPORT EQUIPMENT

None

ILLUSTRATED SUPPORT EQUIPMENT

None

1. INTRODUCTION.

a. This work package contains instructions for maintenance of PWA 50971 wrench.

2. CLEANING.

a. Use soft bristle brush to loosen dirt and remove foreign material.

b. Remove grease using P-D-680, Type II cleaning solvent or equivalent. Wipe solvent from tool with clean, dry, lint-free cloth.

c. Dry with compressed air at 30 psig maximum discharge pressure.

3. INSPECTION.

(See Figure 1 and Table 1.)

a. Inspect PWA 50971 wrench. (See figure 1 and table 1.)

4. REPAIR/REPLACEMENT.

(See figure 1.)

NOTE

Complete disassembly and assembly instructions are provided for the tool, however, it is only necessary to disassemble tool to the extent of replacing or repairing worn or damaged details.

a. Disassembly.

(1) Remove 12 detail-2 teeth, from detail-1 wrench assembly, by removing 12 detail-3 socket head capscrews.

(2) Remove detail-5 handle by removing detail-4 socket head capscrews. Separate details.

b. Repair of details. Not applicable.

NOTE

Wrench teeth are identical on both ends and may be reversed if one end is bent, twisted, or damaged.

c. Assembly.

(1) Install 12 detail-2 teeth in slots of detail-1 wrench assembly and secure with 12 detail-3 socket head capscrews. Torque screws 27 to 30 pound-inches.

(2) Install detail-5 handle on end of splines and secure with two detail-4 socket head capscrews. Torque screws 27 to 30 pound-inches.

d. Apply MIL-L-6081, Grade 1010 corrosion preventive oil prior to storage.

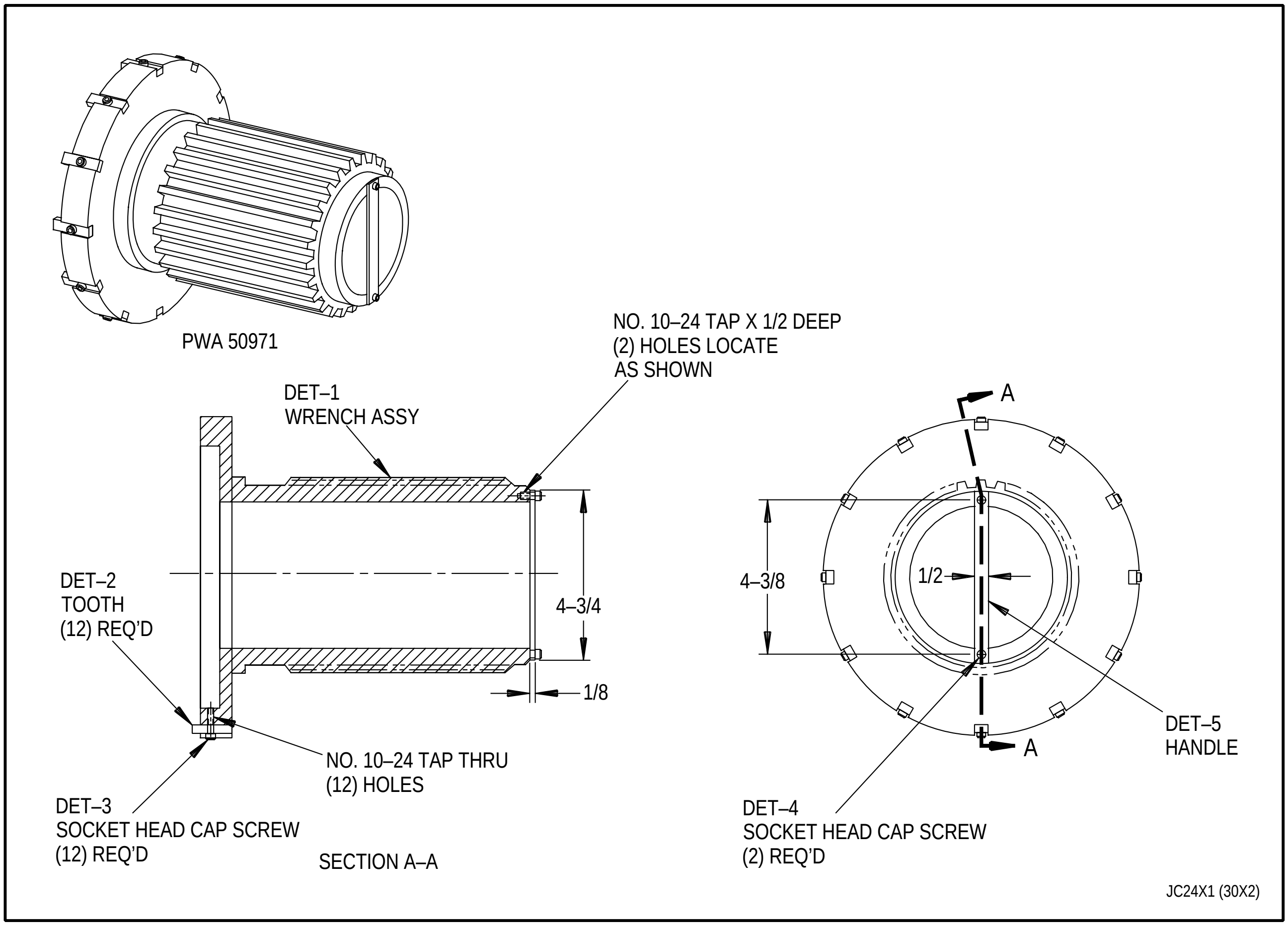


Figure 1. PWA 50971 Wrench

Table 1. Serviceable and Replacement Limits

Frequency	Inspection Area	Inspection Method And Condition	Maximum Serviceable Limits	Maximum Reparable Limits	Corrective Action
Prior to use	Entire tool	Visual for nicks, burrs, broken, or missing details	None	None	Blend, use fine stone, or fine file. Repair or replace details.
	Detail-1 wrench assembly	Visual for nicks, burrs, slot or spline damage	None	None	Blend or replace with NHA.
	Detail-2 tooth	Visual for nicks, burrs, or broken end	None	None	Blend, reverse, or replace tooth.
	Detail-3, -4 socket head capscrew	Visual for thread or socket damage	None	None	Replace.
	Detail-5 handle	Visual for nicks, burrs, or sharp edges	None	None	Blend or locally manufacture replacement.
As required	Entire tool	Visual for coating	No bare spots allowed	None	Refurbish black oxide per AMS 2485 or equivalent.

WORK PACKAGE

TECHNICAL PROCEDURES

PWA 51048 WRENCH - FAN DRIVE TURBINE REAR BALANCE BEARING RETAINING NUT

EFFECTIVITY: ENGINE MODEL F100-PW-229

LIST OF EFFECTIVE WP PAGES

Total Number of Pages in this WP is 6

PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.
1 - 6	0				

REFERENCE MATERIAL REQUIRED

None

APPLICABLE TIME COMPLIANCE TECHNICAL ORDERS

None

CONSUMABLE MATERIALS

Nomenclature	Specification/Vendor Part Number
Cloth, lint-free	-
Oil, preservative	MIL-L-6081, Grade 1010
Solvent, petroleum	P-D-680, Type II

EXPENDABLE ITEMS

None

APPLICABLE SUPPORT EQUIPMENT

None

ILLUSTRATED SUPPORT EQUIPMENT

None

1. INTRODUCTION.

a. This work package contains instructions for maintenance of PWA 51048 wrench.

2. CLEANING.

a. Use soft bristle brush to loosen dirt and remove foreign material.

b. Remove grease using P-D-680, Type II cleaning solvent or equivalent. Wipe solvent from tool with clean, dry, lint-free cloth.

c. Dry with compressed air at 30 psig maximum discharge pressure.

3. INSPECTION.
(See Figure 1 and Table 1.)

a. Inspect PWA 51048 wrench. (See figure and table 1.)

4. REPAIR/REPLACEMENT.
(See figure 1.)

NOTE

Complete disassembly and assembly instructions are provided for the tool, however, it is only necessary to disassemble tool to the extent of replacing or repairing worn or damaged details.

a. Disassembly.

(1) Remove 12 detail-5 keys by removing 12 detail-2 socket head capscrews that retain keys to detail-1 wrench assembly.

(2) Remove four detail-3 pads by removing eight detail-4 socket head capscrews that retain pads to wrench assembly.

b. Repair of details. Not applicable.

NOTE

Wrench teeth or keys are identical on both ends and may be reversed if one end is bent, twisted, or damaged.

c. Assembly.

(1) Install four detail-3 pads and secure with eight detail-4 socket head capscrews. Torque screws 20 to 22 pound-inches.

(2) Install 12 detail-5 keys and secure with 12 detail-2 socket head capscrews. Torque screws 10 to 11.5 pound-inches.

d. Apply MIL-L-6081, Grade 1010 corrosion preventive oil prior to storage.

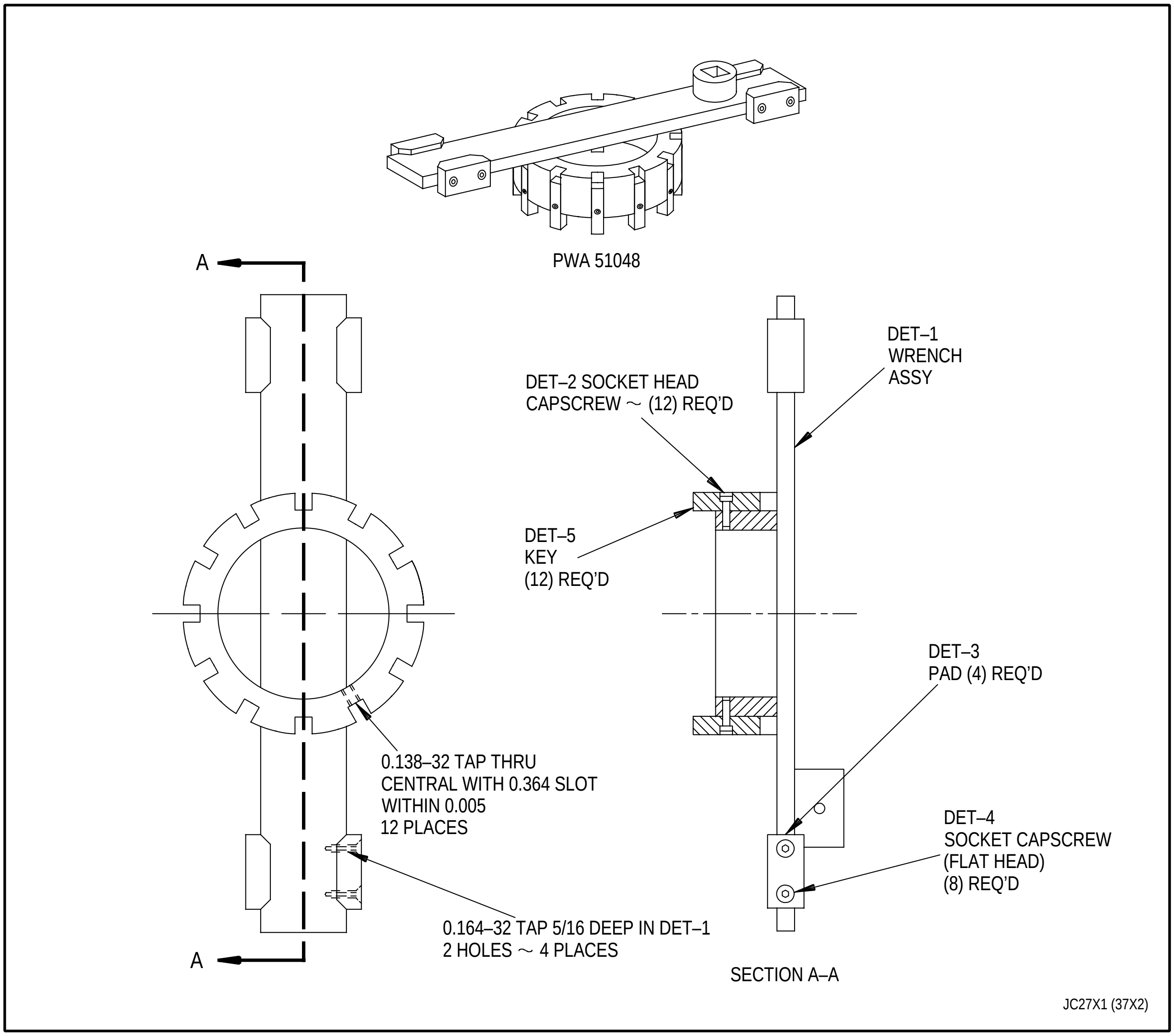


Figure 1. PWA 51048 Wrench

Table 1. Serviceable and Replacement Limits

Frequency	Inspection Area	Inspection Method And Condition	Maximum Serviceable Limits	Maximum Reparable Limits	Corrective Action
Prior to use	Entire tool	Visual for nicks, burrs, broken, or missing details	None	None	Blend, use fine stone or fine file. Repair or replace details.
	Detail-1 wrench assembly	Visual for nicks, burrs, broken, cracked, welds or thread damage	None	None	Blend or replace with NHA.
	Detail-2 or -4 socket head capscrew	Visual for thread or socket damage	None	None	Replace.
	Detail-3 pad	Visual for peened, sharp edges or splits	None	None	Replace.
	Detail-5 key	Visual for broken or damaged ends	None	None	Replace of reverse keys.
As required	Entire tool	Visual for coating	None	None	Refurbish black oxide per AMS 2485 or equivalent.

WORK PACKAGE

TECHNICAL PROCEDURES

PWA 51049 PUSHER - NO. 5 BEARING PLUG AND BALANCE SPACER INTO LOW TURBINE SHAFT

EFFECTIVITY: ENGINE MODEL F100-PW-229

LIST OF EFFECTIVE WP PAGES

Total Number of Pages in this WP is 6

PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.
1 - 5	0				
6 Blank	0				

REFERENCE MATERIAL REQUIRED

None

APPLICABLE TIME COMPLIANCE TECHNICAL ORDERS

None

CONSUMABLE MATERIALS

Nomenclature	Specification/Vendor Part Number
Cloth, lint-free	-
Oil, preservative	MIL-L-6081, Grade 1010
Solvent, petroleum	P-D-680, Type II

EXPENDABLE ITEMS

None

APPLICABLE SUPPORT EQUIPMENT

None

ILLUSTRATED SUPPORT EQUIPMENT

None

1. INTRODUCTION.

a. This work package contains instructions for maintenance of PWA 51049 pusher.

2. CLEANING.

a. Use soft bristle brush to loosen dirt and remove foreign material.

b. Remove grease using P-D-680, Type II cleaning solvent or equivalent. Wipe solvent from tool with clean, dry, lint-free cloth.

c. Dry with compressed air at 30 psig maximum discharge pressure.

3. INSPECTION.

(See Figure 1 and Table 1.)

a. Inspect PWA 51049 pusher. See figure 1 and table 1.

4. REPAIR/REPLACEMENT.

(See figure 1.)

NOTE

Complete disassembly and assembly instructions are provided for the tool, however, it is only necessary to disassemble tool to the extent of replacing or repairing worn or damaged details.

a. Disassembly.

(1) Turn detail-3 capscrew through pusher assembly to gain access to detail-4 dowel pin.

(2) Press or drift out dowel pin that retains detail-2 plate to capscrew. Separate details.

(3) Remove capscrew from detail-1 pusher assembly.

b. Repair of details. Not applicable.

c. Assembly

(1) Install detail-3 capscrew through detail-1 pusher assembly as far as possible.

(2) Install detail-2 plate on grooved end of capscrew.

NOTE

Plate shall have movement to allow centering after pin installation.

(3) Press detail-4 dowel pin through plate and groove of capscrew. Retract capscrew and plate.

d. Apply MIL-L-6081, Grade 1010 corrosive preventive oil prior to storage.

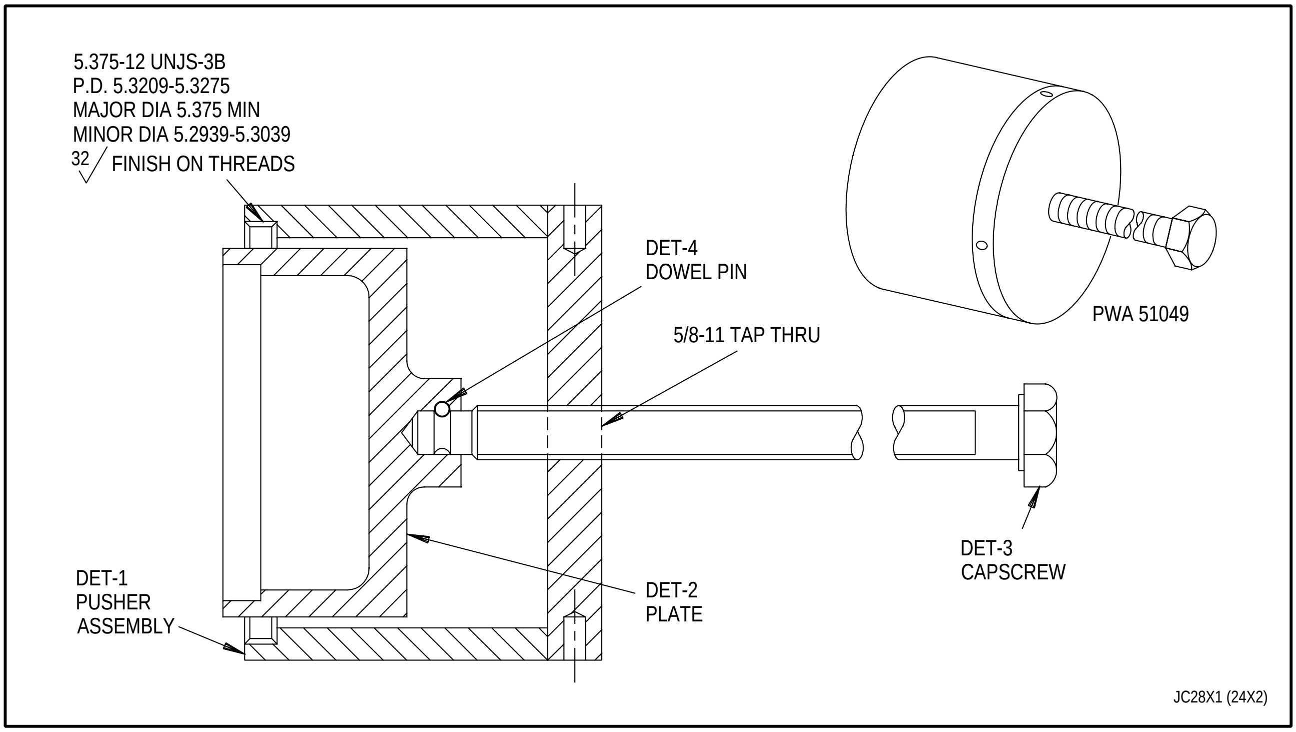


Figure 1. PWA 51049 Pusher

Table 1. Serviceable and Replacement Limits

Frequency	Inspection Area	Inspection Method And Condition	Maximum Serviceable Limits	Maximum Reparable Limits	Corrective Action
Prior to use	Entire tool	Visual for nicks, burrs, missing or broken details	None	None	Blend, use fine stone or fine file. Repair or replace details.
	Detail-1 pusher assembly	Visual for thread damage	None	None	Chase threads or replace with NHA.
	Detail-2 plate	Visual for nicks or burrs	None	None	Blend or replace with NHA.
	Detail-3 capscrew	Visual for thread or hex flat damage	None	None	Blend or replace with NHA.
	Detail-4 dowel pin	Damage	None	None	Local manufacture or replace with NHA.
As required	Entire tool	Visual for coating	No bare spots allowed	None	Refurbish black oxide per AMS 2485 or equivalent.

WORK PACKAGE

TECHNICAL PROCEDURES

PWA 52667 WRENCH, HAND - NO. 4 BEARING OIL SCAVENGE TRANSFER TUBE

EFFECTIVITY: ENGINE MODEL F100-PW-229

LIST OF EFFECTIVE WP PAGES

Total Number of Pages in this WP is 6

PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.
1 - 5	0				
6 Blank	0				

REFERENCE MATERIAL REQUIRED

None

APPLICABLE TIME COMPLIANCE TECHNICAL ORDERS

None

CONSUMABLE MATERIALS

Nomenclature	Specification/Vendor Part Number
Cloth, lint-free	-
Oil, preservative	MIL-L-6081, Grade 1010
Solvent, petroleum	P-D-680, Type II

EXPENDABLE ITEMS

None

APPLICABLE SUPPORT EQUIPMENT

None

ILLUSTRATED SUPPORT EQUIPMENT

None

1. INTRODUCTION.

a. This work package contains instructions for maintenance of PWA 52667 wrench.

2. CLEANING.

a. Use soft bristle brush to loosen dirt and remove foreign material.

b. Remove grease using P-D-680, Type II cleaning solvent or equivalent. Wipe solvent from tool with clean, dry, lint-free cloth.

c. Dry with compressed air at 30 psig maximum discharge pressure.

3. INSPECTION.

(See Figure 1 and Table 1.)

a. Inspect PWA 52667 wrench. (See figure 1 and table 1.)

4. REPAIR/REPLACEMENT.

(See figure 1.)

NOTE

Complete disassembly and assembly instructions are provided for the tool, however, it is only necessary to disassemble tool to the extent of replacing or repairing worn or damaged details.

a. Disassembly.

(1) Remove two detail-3 teeth from detail-1 body by removing two detail-2 socket head capscrews. Separate details.

b. Repair of details. Not applicable.

NOTE

Wrench teeth are identical on both ends and may be reversed if one end is bent, twisted, or damaged.

c. Assembly.

(1) Install two detail-3 teeth into slots of detail-1 body.

(2) Secure teeth with two detail-2 socket head capscrews. Torque screws 8 to 10 pound-inches.

d. Apply MIL-L-6081, Grade 1010 corrosion preventive oil prior to storage.

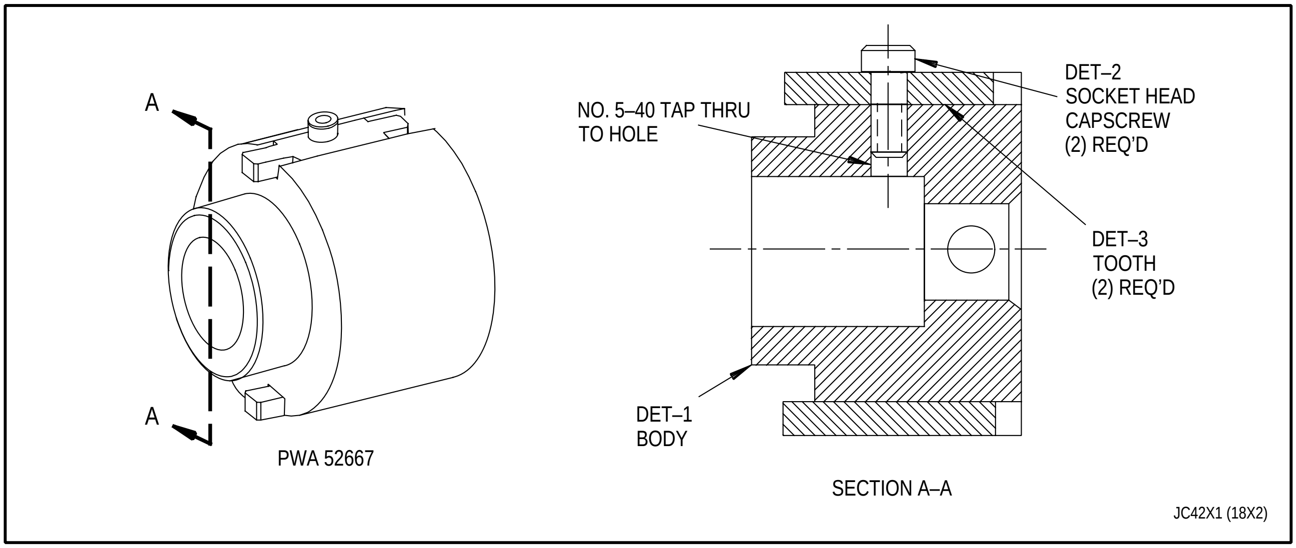


Figure 1. PWA 52667 Wrench

Table 1. Serviceable and Replacement Limits

Frequency	Inspection Area	Inspection Method And Condition	Maximum Serviceable Limits	Maximum Reparable Limits	Corrective Action
Prior to use	Entire tool	Visual for nicks, burrs, broken, or missing details	None	None	Blend, use fine stone or fine file. Repair or replace details.
	Detail-1 body	Visual for nicks, burrs, or thread damage	None	None	Blend, chase threads, or replace with NHA.
	Detail-2 socket head capscrew	Visual for thread or socket damage	None	None	Replace.
	Detail-3 tooth	Visual for nicks, burrs, broken, or damaged end.	None	None	Blend, reverse, or replace tooth.
As required	Entire tool	Visual for coating	No bare spots allowed	None	Refurbish black oxid per AMS 2485 or equivalent.

WORK PACKAGE

TECHNICAL PROCEDURES

PWA 52686 WRENCH - NO. 4 BEARING OIL PRESSURE TRANSFER TUBE

EFFECTIVITY: ENGINE MODEL F100-PW-229

LIST OF EFFECTIVE WP PAGES

Total Number of Pages in this WP is 6

PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.
1 - 5	0				
6 Blank	0				

REFERENCE MATERIAL REQUIRED

None

APPLICABLE TIME COMPLIANCE TECHNICAL ORDERS

None

CONSUMABLE MATERIALS

Nomenclature	Specification/Vendor Part Number
Cloth, lint free	-
Oil, preservative	MIL-L-6081, Grade 1010
Solvent, petroleum	P-D-680, Type II

EXPENDABLE ITEMS

None

APPLICABLE SUPPORT EQUIPMENT

None

ILLUSTRATED SUPPORT EQUIPMENT

None

1. INTRODUCTION.

a. This work package contains instructions for maintenance of PWA 52686 wrench.

2. CLEANING.

a. Use soft bristle brush to loosen dirt and remove foreign material.

b. Remove grease using P-D-680, Type II cleaning solvent or equivalent. Wipe solvent from tool with clean, dry, lint-free cloth.

c. Dry with compressed air at 30 psig maximum discharge pressure.

3. INSPECTION.

(See Figure 1 and Table 1.)

a. Inspect PWA 52686 wrench. (See figure 1 and table 1.)

4. REPAIR/REPLACEMENT.

(See figure 1.)

NOTE

Complete disassembly and assembly instructions are provided for the tool, however, it is only necessary to disassemble tool to the extent of replacing or repairing worn or damaged details.

a. Disassembly.

(1) Remove two detail-2 teeth from detail-1 wrench by removing two detail-3 socket head capscrews. Separate details.

b. Repair of details. Not applicable.

NOTE

Wrench teeth are identical on both ends and may be reversed if one end is bent, twisted, or damaged.

c. Assembly.

(1) Install two detail-2 teeth in slots of detail-1 wrench.

(2) Secure with two detail-3 socket head capscrews. Torque screws 8 to 10 pound-inches.

d. Apply MIL-L-6081, Grade 1010 corrosion preventive oil prior to storage.

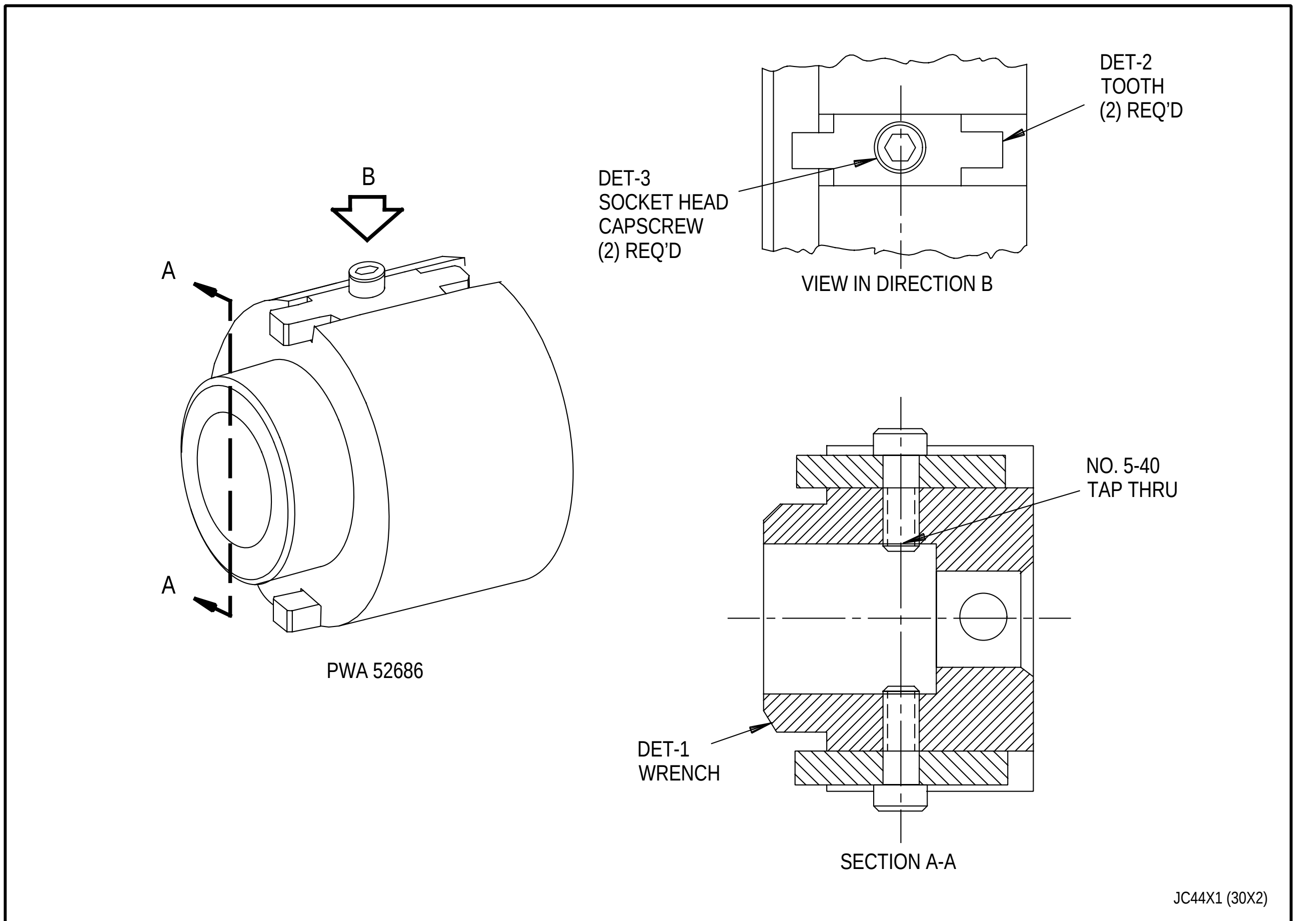


Figure 1. PWA 52686 Wrench

Table 1. Serviceable and Replacement Limits

Frequency	Inspection Area	Inspection Method And Condition	Maximum Serviceable Limits	Maximum Reparable Limits	Corrective Action
Prior to use	Entire tool	Visual for nicks, burrs, broken, or missing details	None	None	Blend, use fine stone or fine file. Repair or replace details.
	Detail-1 wrench	Visual for nicks, burrs, or thread damage	None	None	Blend, chase threads, or replace with NHA.
	Detail-2 tooth	Visual for nicks, burrs, broken, or damaged end	None	None	Blend, reverse, or replace tooth.
	Detail-3 socket head capscrew	Visual for thread or socket head damage	None	None	Replace.
As required	Entire tool	Visual for coating	No bare spots allowed	None	Refurbish black oxide per AMS 2485 or equivalent.

WORK PACKAGE

TECHNICAL PROCEDURES

PWA 52769 WRENCH - MAIN FUEL SUPPLY TRANSFER TUBE

EFFECTIVITY: ENGINE MODEL F100-PW-229

LIST OF EFFECTIVE WP PAGES

Total Number of Pages in this WP is 6

PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.
1 - 6	0				

REFERENCE MATERIAL REQUIRED

None

APPLICABLE TIME COMPLIANCE TECHNICAL ORDERS

None

CONSUMABLE MATERIALS

Nomenclature	Specification/Vendor Part Number
Cloth, lint free	-
Oil, preservative	MIL-L-6081, Grade 1010
Solvent, petroleum	P-D-680, Type II

EXPENDABLE ITEMS

None

APPLICABLE SUPPORT EQUIPMENT

None

ILLUSTRATED SUPPORT EQUIPMENT

None

1. INTRODUCTION.

a. This work package contains maintenance instructions for PWA 52769 wrench.

2. CLEANING.

a. Use soft bristle brush to loosen dirt and remove foreign material from holder.

b. Remove grease from holder using P-D-680, Type II cleaning, solvent or equivalent. Wipe solvent from holder with clean, dry, lint-free cloth.

c. Dry holder with compressed air at 30 psig maximum discharge pressure.

3. INSPECTION.

(See Figure 1 and Table 1.)

a. Inspect PWA 52769 wrench. (See figure 1 and table 1.)

4. REPAIR/REPLACEMENT.

(See figure 1.)

NOTE

Complete disassembly and assembly instructions are provided for the tool, however, it is only necessary to disassemble tool to the extent of replacing or repairing worn or damaged details.

a. Disassembly.

(1) Remove two detail-2 teeth from detail-1 wrench by removing two detail-3 socket head capscrews. Separate details.

b. Repair of details. Not applicable.

NOTE

Wrench teeth are identical on both ends and may be reversed if one end is bent, twisted, or damaged.

c. Assembly.

(1) Install two detail-2 teeth in slots of detail-1 wrench.

(2) Secure with two detail-3 socket head capscrews. Torque screws 8 to 10 pound-inches.

d. Apply MIL-L-6081, Grade 1010 corrosion preventive oil prior to storage.

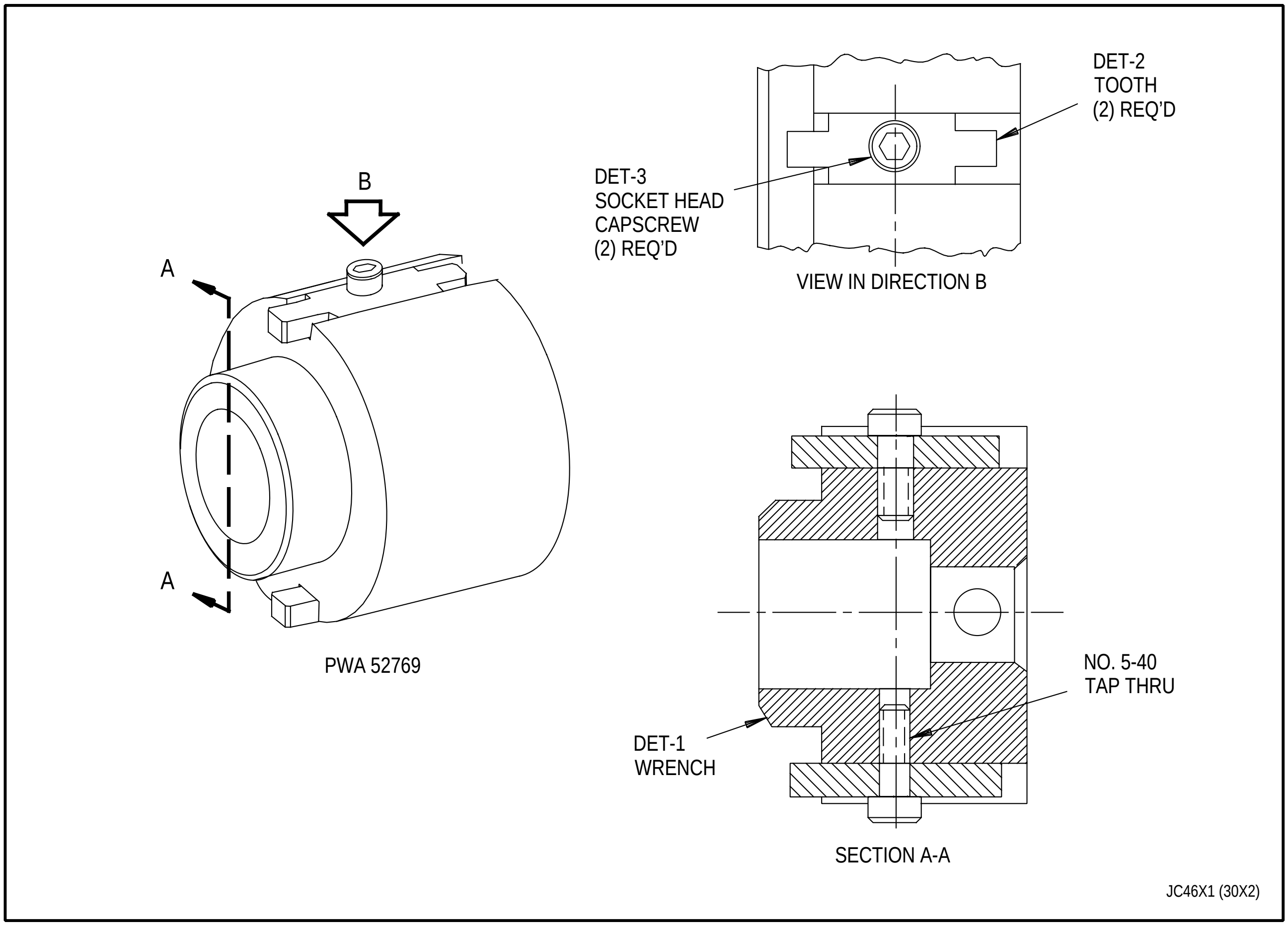


Figure 1. PWA 52769 Wrench

Table 1. Serviceable and Replacement Limits

Frequency	Inspection Area	Inspection Method And Condition	Maximum Serviceable Limits	Maximum Reparable Limits	Corrective Action
Prior to use	Entire tool	Visual for nicks, burrs, broken, or missing details	None	None	Blend, use fine stone or fine file. Repair or replace details.
	Detail-1 wrench	Visual for nicks, burrs, or thread damage	None	None	Blend, chase threads, or replace with NHA.
	Detail-2 tooth	Visual for nicks, burrs, broken or damaged end	None	None	Blend, reverse, or replace tooth.
	Detail-3 socket head capscrew	Visual for thread or socket damage	None	None	Replace.
As required	Entire tool	Visual for coating	No bare spots allowed	None	Refurbish black oxide per AMS 2485 or equivalent.

WORK PACKAGE

TECHNICAL PROCEDURES

PWA 52891 WRENCH - HYDRAULIC LOADING NO. 5 BEARING SUPPORT RODS

EFFECTIVITY: ENGINE MODEL F100-PW-229

LIST OF EFFECTIVE WP PAGES

Total Number of Pages in this WP is 6

PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.
1 - 6	0				

REFERENCE MATERIAL REQUIRED

Title	Number
Support Equipment and Numerical Tool List - - - - - - - - - - -	T.O. 2J-F100-53-3
Hydraulic Cylinder - Repair and Maintenance - - - - - - - - -	WP 006 00

APPLICABLE TIME COMPLIANCE TECHNICAL ORDERS

None

CONSUMABLE MATERIALS

Nomenclature	Specification/Vendor Part Number
Cloth, lint-free	-
Oil, preservative	MIL-L-6081, Grade 1010
Solvent, petroleum	P-D-680, Type II

EXPENDABLE ITEMS

None

APPLICABLE SUPPORT EQUIPMENT

None

ILLUSTRATED SUPPORT EQUIPMENT

None

1. INTRODUCTION.

a. This work package contains maintenance instructions for PWA 52891 wrench.

2. CLEANING.

a. Use soft bristle brush to loosen dirt and remove foreign material from wrench.

b. Remove grease from wrench using P-D-680, Type II cleaning solvent or equivalent. Wipe solvent from wrench with clean, dry, lint-free cloth.

c. Dry wrench with compressed air at a maximum pressure of 30 psig.

3. INSPECTION.

(See Figure 1 and Table 1.)

a. Inspect PWA 52891 wrench. (See figure 1 and table 1.)

4. REPAIR/REPLACEMENT.

(See figure 1.)

a. Replace broken or damaged support rod, detail-6 as follows:

(1) Remove knurled end cap, detail-5 from hydraulic cylinder.

(2) Remove support rod, detail-6 and flange nut, detail-7 from hydraulic cylinder.

(3) Remove flange nut, detail-7 from support rod.

(4) Install flange nut, detail-7 on new support rod, detail-6.

(5) Install support rod and nut in hydraulic cylinder.

(6) Install knurled end cap, detail-5 handtight on end of hydraulic cylinder.

b. Apply MIL-L-6081, Grade 1010 corrosion preventive oil prior to storage.

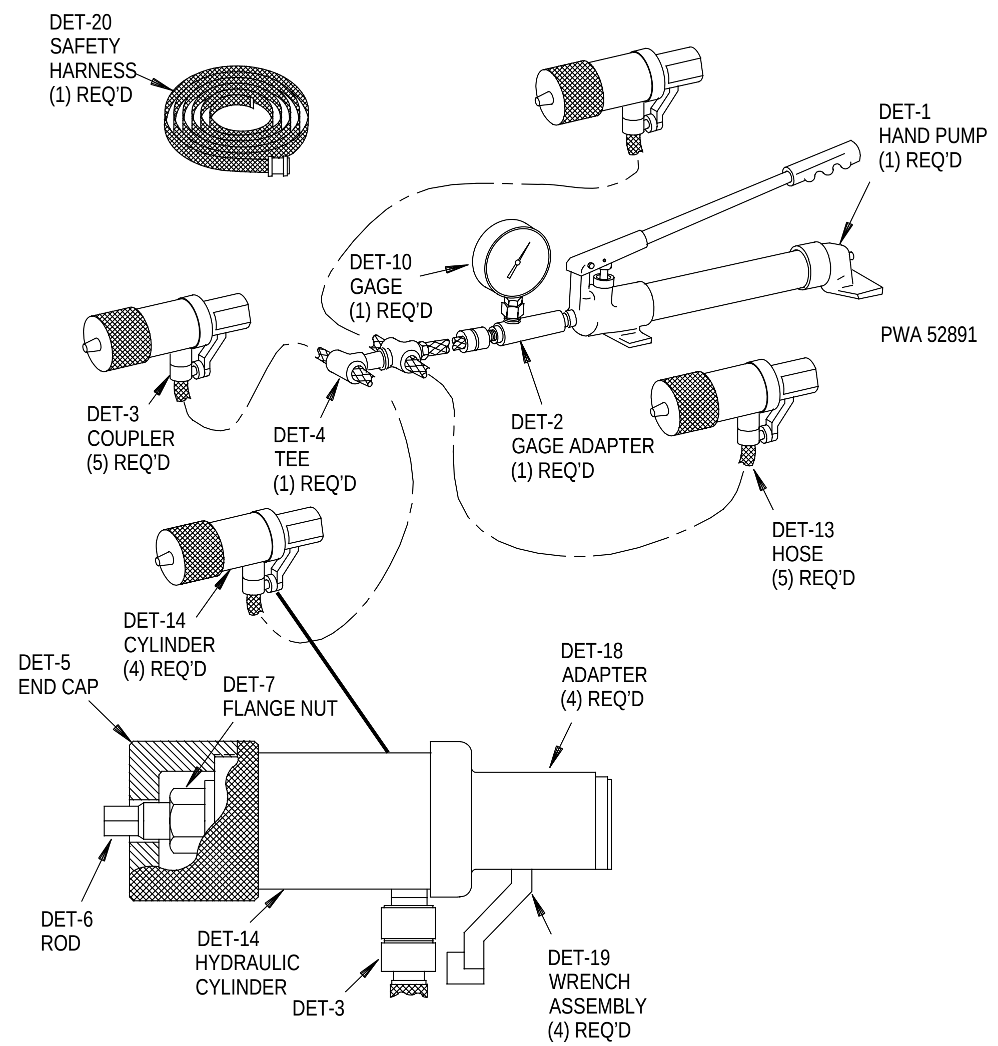


Figure 1. PWA 52891 No. 5 Bearing Support Rods Hydraulic Loading Wrench

Table 1. Serviceable and Replacement Limits

Frequency	Inspection Area	Inspection Method And Condition	Maximum Serviceable Limits	Maximum Reparable Limits	Corrective Action
Prior to use	Entire wrench	Visual for nicks and burrs	None	None	Blend, using fine file or fine stone.
	Detail-13 hoses	Visual for ruptured or leaking hoses	None	None	Replace damaged hoses.
	Detail-14 hydraulic cylinder	Visual for leakage	No leakage allowed	Any amount	Replace seals. Refer to T.O. 2J-F100-53-3, WP 006 00.
Annual	Detail-6 support rod	Magnetic particle or fluorescent penetrant for cracked support rod	None	None	Replace with new rod.
Semi-annual	Detail-10 gage	Perform accuracy range checks	Not established	Not established	Calibrate gage.

SUBORDINATE WORK PACKAGE

TECHNICAL PROCEDURES

PWA 56566 ADAPTER - HYDRAULIC LOADING, NO. 5 BEARING SUPPORT RODS

EFFECTIVITY: ENGINE MODEL F100-PW-229

LIST OF EFFECTIVE SWP PAGES

Total Number of Pages in this SWP is 6

PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.
1 - 6	14				

REFERENCE MATERIAL REQUIRED

Title		Number
Support Equipment and Numerical Tool List	- - - - - - - - - - -	T.O. 2J-F100-53-3
Hydraulic Cylinder - Repair and Maintenance	- - - - - - - - -	WP 006 00

APPLICABLE TIME COMPLIANCE TECHNICAL ORDERS

None

CONSUMABLE MATERIALS

Nomenclature	Specification/Vendor Part Number
Cloth, lint-free	-
Oil, preservative	MIL-L-6081, Grade 1010
Solvent, petroleum	P-D-680, Type II

EXPENDABLE ITEMS

None

APPLICABLE SUPPORT EQUIPMENT

None

ILLUSTRATED SUPPORT EQUIPMENT

None

1. INTRODUCTION.

a. This subordinate work package contains maintenance instructions for PWA 56566 adapter.

2. CLEANING.

a. Use soft bristle brush to loosen dirt and remove foreign material from adapter.

b. Remove grease from adapter using P-D-680, Type II cleaning solvent or equivalent. Wipe solvent from adapter with clean, dry, lint-free cloth.

c. Dry adapter with compressed air at a maximum pressure of 30 psig.

3. INSPECTION.
(See Figure 1 and Table 1.)

a. Inspect PWA 56566 adapter. (See figure 1 and table 1.)

4. REPAIR/REPLACEMENT.
(See figure 1.)

a. Replace broken or damaged support rod, detail-6 as follows:

(1) Remove knurled end cap, detail-5 from hydraulic cylinder.

(2) Remove support rod, detail-6 and flange nut, detail-7 from hydraulic cylinder.

(3) Remove flange nut, detail-7 from support rod.

(4) Install flange nut, detail-7 on new support rod, detail-6.

(5) Install support rod and nut in hydraulic cylinder.

(6) Install knurled end cap, detail-5 handtight on end of hydraulic cylinder.

b. Apply MIL-L-6081, Grade 1010 corrosion preventive oil prior to storage.

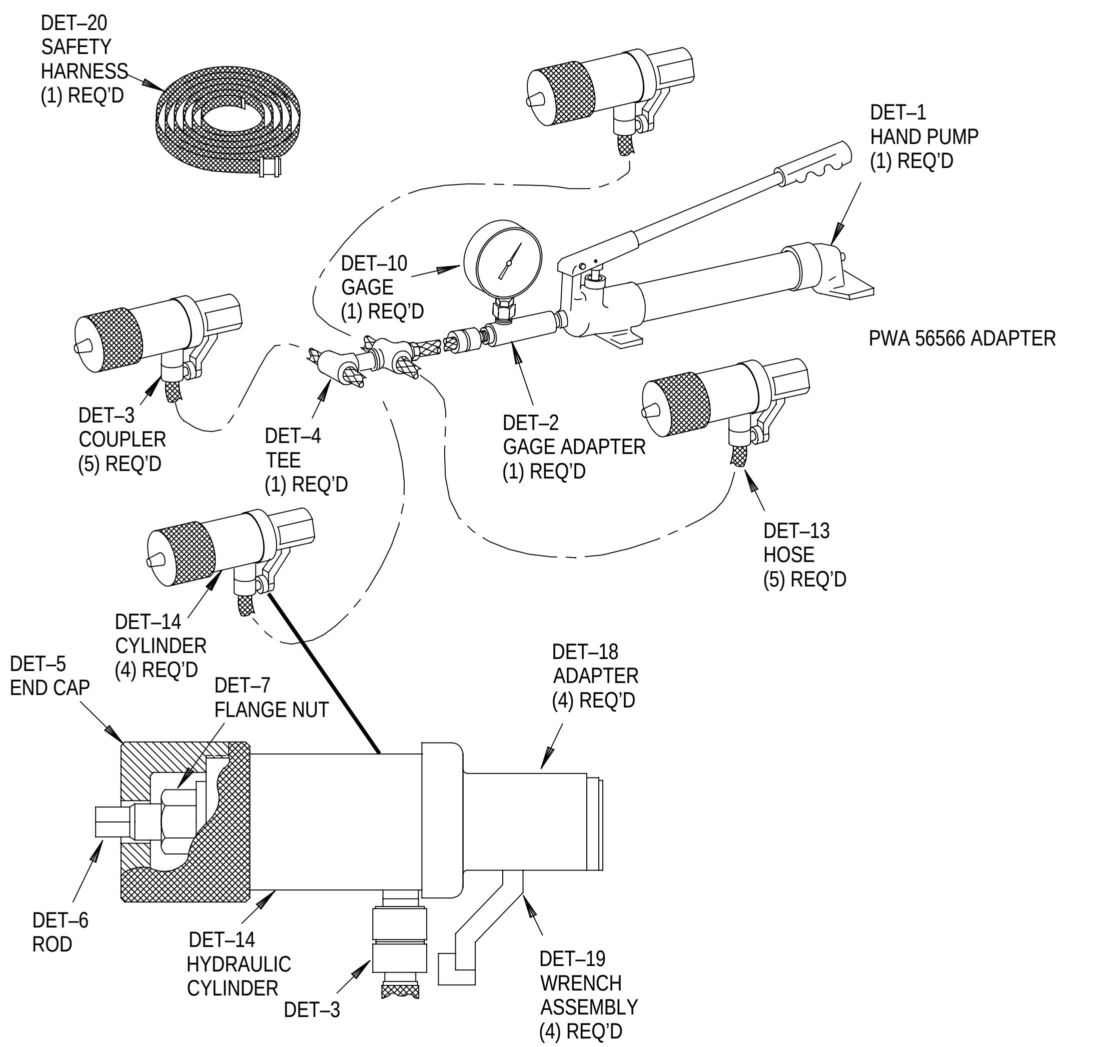


Figure 1. PWA 56566 Adapter, No. 5 Bearing Support Rods Hydraulic Loading

Table 1. Serviceable and Replacement Limits

Frequency	Inspection Area	Inspection Method And Condition	Maximum Serviceable Limits	Maximum Reparable Limits	Corrective Action
Prior to use	Entire adapter	Visual for nicks and burrs	None	None	Blend, using fine file or fine stone.
	Detail-13 hoses	Visual for ruptured or leaking hoses	None	None	Replace damaged hoses.
	Detail-14 hydraulic cylinder	Visual for leakage	No leakage allowed	Any amount	Replace seals. Refer to WP 006 00.
Annual	Detail-6 support rod	Magnetic particle or fluorescent penetrant for cracked support rod	None	None	Replace with new rod.
Semi-annual	Detail-10 gage	Perform accuracy range checks	Not established	Not established	Calibrate gage.

WORK PACKAGE

TECHNICAL PROCEDURES

PWA 53340 WRENCH TORQUE - TURBINE HUB RETAINING NUT

EFFECTIVITY: ENGINE MODEL F100-PW-229

LIST OF EFFECTIVE WP PAGES

Total Number of Pages in this WP is 8

PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.
1 - 7	0	8 Blank	0		

REFERENCE MATERIAL REQUIRED

None

APPLICABLE TIME COMPLIANCE TECHNICAL ORDERS

None

CONSUMABLE MATERIALS

Nomenclature	Specification/Vendor Part Number
Cloth, lint-free	-
Oil, preservative	MIL-L-6081, Grade 1010
Solvent, petroleum	P-D-680, Type II

EXPENDABLE ITEMS

None

APPLICABLE SUPPORT EQUIPMENT

None

ILLUSTRATED SUPPORT EQUIPMENT

None

1. INTRODUCTION.

a. This work package contains instructions for maintenance PWA 53340 wrench.

2. CLEANING.

a. Use soft bristle brush to loosen dirt and remove foreign material from wrench.

b. Remove grease from wrench using P-D-680, Type II cleaning solvent or equivalent. Wipe solvent from wrench with clean, dry, lint-free cloth.

c. Dry with compressed air at 30 psig maximum discharge pressure.

3. INSPECTION.

(See Figure 1 and Table 1.)

a. Inspect PWA 53340 wrench. (See figure 1 and table 1.)

4. REPAIR/REPLACEMENT.

(See figure 1.)

NOTE

Complete disassembly and assembly instructions are provided for the tool, however, it is only necessary to disassembly tool to the extent of replacing or repairing worn or damaged details.

a. Disassembly.

(1) Release two detail-11 straps by loosening two detail-12 and -13 socket head capscrews and separate detail-8 and -9 tube assemblies.

(2) Remove two detail-10 thumbscrews from wrench flange of detail-8 tube assembly.

(3) Remove two detail-11 straps by removing two detail-13 socket head capscrews. Separate details.

(4) Remove two detail-12 socket head capscrews.

(5) Remove eight detail-7 teeth from detail-8 tube assembly by removing eight detail-6 socket head capscrews. Separate details.

(6) Remove two detail-3 handles by unscrewing from bosses.

(7) If required detail-5 adapter may be removed from detail-9 tube assembly by removing eight detail-4 socket head capscrews and machining out two detail-14 dowel pins. Separate details.

(8) Remove 16 detail-1 teeth from tube assembly by removing 16 detail-2 socket head capscrews (flat head) separate details.

b. Repair of details.

NOTE

Detail-7 wrench teeth are identical on both ends and may be reversed if one end is bent, twisted or damaged.

c. Assembly.

(1) Assemble detail-9 tube assembly as follows:

(a) Install 16 detail-1 teeth into slots of tube assembly.Secure with 16 detail-2 socket head capscrews (flathead). Torque screws 20 to 22 pound-inches.

(b) Install two detail-3 handles into bosses on tube assembly.

(2) If removed at disassembly, reinstall detail-5 adapter on tube assembly. Align two detail-14 dowel pin holes and install dowel pins. Secure with eight detail-4 socket head capscrews. Torque screws 27 to 30 pound-inches.

(3) Assemble detail-8 tube assembly as follows:

(a) Install eight detail-7 teeth into slots in tube assembly. Secure with eight detail-6 socket head capscrews. Torque screws 27 to 30 pound-inches.

(b) Install two detail-3 handles into bosses on tube assembly.

(c) Install two detail-10 thumbscrews into wrench flange bosses.

(4) Join assembled detail-8 and -9 tube assemblies by installing two detail-11 straps. Secure straps with two detail-13 socket head capscrews through hole and two detail-12 socket head capscrews in strap slots. Torque screws 65 to 70 pound-inches.

d. Apply MIL-L-6081, Grade 1010 corrosion preventive oil prior to storage.

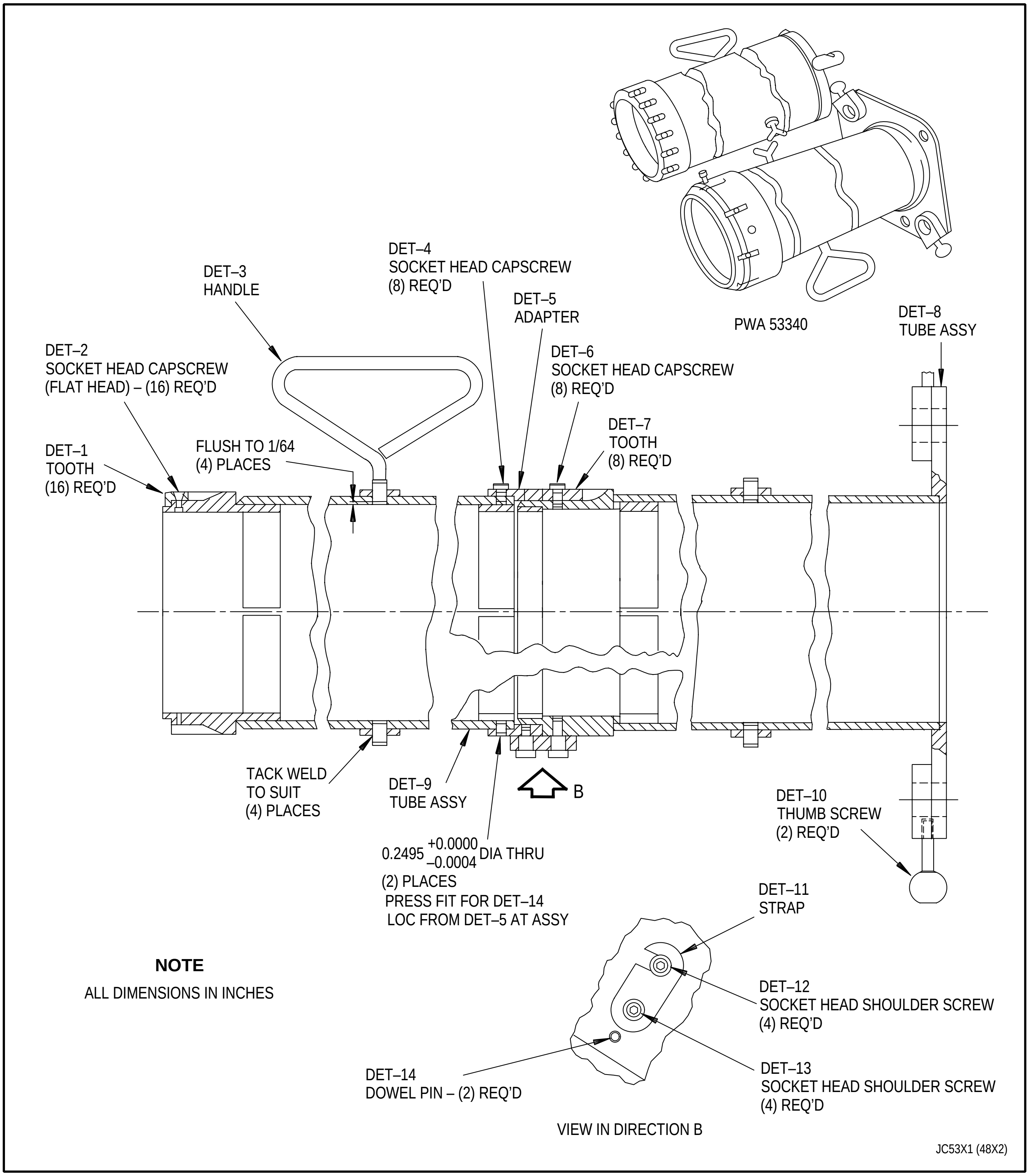


Figure 1. PWA 53340 Wrench

Table 1. Serviceable and Replacement Limits

Frequency	Inspection Area	Inspection Method And Condition	Maximum Serviceable Limits	Maximum Reparable Limits	Corrective Action
Prior to use	Entire tool	Visual for nicks, burrs, broken, or missing details	None	None	Blend, use fine stone or fine file. Repair or replace details.
	Detail-1 teeth	Visual for nicks, burrs, or broken lip	None	None	Blend or replace.
	Detail-2, -4, -6, -12, -13 socket head capscrew	Visual for thread or socket head damage	None	None	Blend or replace.
	Detail-3 handle	Visual for nicks, burrs, sharp edges, or bent condition	None	None	Blend or replace.
	Detail-5 adapter	Visual for nicks, burrs, or slot damage	None	None	Blend, no repair NHA.
	Detail-7 teeth	Visual for nicks, burrs, or broken end	None	None	Reverse or replace as required.

Table 1. Serviceable and Replacement Limits (continued)

Frequency	Inspection Area	Inspection Method And Condition	Maximum Serviceable Limits	Maximum Reparable Limits	Corrective Action
Prior to use (continued)	Detail-8, tube assembly	Visual for nicks, burrs, broken guides, or separated details	None	None	Blend, no repair NHA.
	Detail-10 thumbscrew	Visual for thread damage or bent condition	None	None	Replace.
	Detail-11 strap	Visual for nicks, burrs, or bent condition	None	None	Locally manufacture replacement.
	Detail-14 dowel pin	Damage	None	None	Replace.
As required	Entire tool	Visual for coating	No bare spots allowed	None	Refurbish black oxide per AMS 2485 or equivalent.

WORK PACKAGE

TECHNICAL PROCEDURES

PWA 53360 WRENCH - NO. 5 BEARING SEAL SEAT RETAINING NUT

EFFECTIVITY: ENGINE MODEL F100-PW-229

LIST OF EFFECTIVE WP PAGES

Total Number of Pages in this WP is 6

PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.
1 - 6	0				

REFERENCE MATERIAL REQUIRED

None

APPLICABLE TIME COMPLIANCE TECHNICAL ORDERS

None

CONSUMABLE MATERIALS

Nomenclature	Specification/Vendor Part Number
Cloth, lint-free	-
Oil, preservative	MIL-L-6081, Grade 1010
Solvent, petroleum	P-D-680, Type II

EXPENDABLE ITEMS

None

APPLICABLE SUPPORT EQUIPMENT

None

ILLUSTRATED SUPPORT EQUIPMENT

None

1. INTRODUCTION.

a. This work package contains instructions for maintenance PWA 53360 wrench.

2. CLEANING.

a. Use soft bristle brush to loosen dirt and remove foreign material from wrench.

b. Remove grease from wrench using P-D-680, Type II cleaning solvent or equivalent. Wipe solvent from wrench with clean, dry, lint-free cloth.

c. Dry with compressed air at 30 psig maximum discharge pressure.

3. INSPECTION.
(See Figure 1 and Table 1.)

a. Inspect PWA 53360 wrench. (See figure 1 and table 1.)

4. REPAIR/REPLACEMENT.
(See figure 1.)

NOTE

Complete disassembly and assembly instructions are provided for the tool, however, it is only necessary to disassembly tool to the extent of replacing or repairing worn or damaged details.

a. Disassembly.

(1) Remove two detail-4 swivel head screws from detail-1 holder assembly wrench flange.

(2) Remove 11 detail-2 teeth from holder assembly by removing 11 detail-3 socket head capscrews. Separate details.

b. Repair of details. Not applicable.

NOTE

Wrench teeth are identical on both ends and may be reversed if one end is bent, twisted, or damaged.

c. Assembly.

(1) Install 11 detail-3 teeth in ID slots in detail-1 holder assembly. Secure teeth with 11 detail-3 socket head capscrews. Torque screws 5 to 6 pound-inches.

(2) Install two detail-4 swivel head screws in threaded holes in holder assembly wrench flange.

d. Apply MIL-L-6081, Grade 1010 corrosion preventive oil prior to storage.

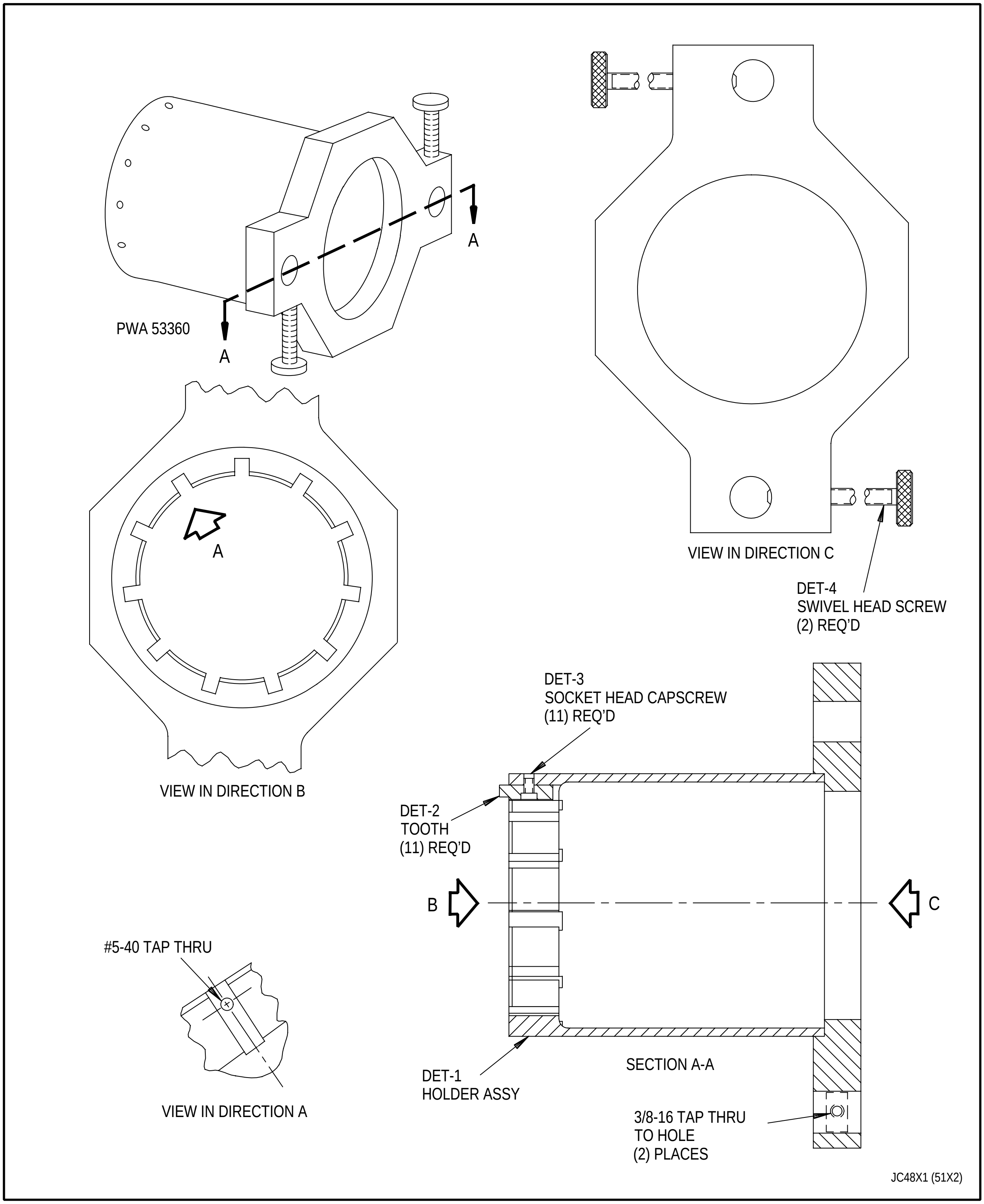


Figure 1. PWA 53360 Wrench

Table 1. Serviceable and Replacement Limits

Frequency	Inspection Area	Inspection Method And Condition	Maximum Serviceable Limits	Maximum Reparable Limits	Corrective Action
Prior to use	Entire tool	Visual for nicks, burrs, broken, or missing details	None	None	Blend, use fine stone or fine file. Repair or replace details.
	Detail-1 holder assembly	Visual for nicks, burrs, or slot damage	None	None	Blend or replace with NHA.
	Detail-2 tooth	Visual for nicks, burrs, or broken ends	None	None	Blend, reverse or replace tooth.
	Detail-3 socket head capscrew	Visual for thread or socket damage	None	None	Replace.
	Detail-4 swivel head screw	Visual for thread or swivel end damage	None	None	Replace.
As required	Entire tool	Visual for coating	No bare spots allowed	None	Refurbish black oxide per AMS 2485 or equivalent.

WORK PACKAGE

TECHNICAL PROCEDURES

PWA 53370 FIXTURE - DIFFUSER CASE OIL TUBES AIR LEAK CHECK

EFFECTIVITY: ENGINE MODEL F100-PW-229

LIST OF EFFECTIVE WP PAGES

Total Number of Pages in this WP is 6

PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.
1 - 6	0				

REFERENCE MATERIAL REQUIRED

None

APPLICABLE TIME COMPLIANCE TECHNICAL ORDERS

None

CONSUMABLE MATERIALS

Nomenclature	Specification/Vendor Part Number
Cloth, lint-free	-
Oil, preservative	MIL-L-6081, Grade 1010
Solvent, petroleum	P-D-680, Type II

EXPENDABLE ITEMS

Nomenclature	Part Number	Quantity
Packing	MS9021-274	1
Packing	MS9021-261	1

APPLICABLE SUPPORT EQUIPMENT

None

ILLUSTRATED SUPPORT EQUIPMENT

None

1. INTRODUCTION.

a. This work package contains maintenance instructions for PWA 53370 fixture.

2. CLEANING.

a. Use soft bristle brush to loosen dirt and remove foreign material from wrench.

b. Remove grease from wrench using P-D-680, Type II cleaning solvent or equivalent. Wipe solvent from wrench with clean, dry, lint-free cloth.

c. Dry with compressed air at 30 psig maximum discharge pressure.

3. INSPECTION.
(See Figure 1 and Table 1.)

a. Inspect PWA 53370. (See figure 1 and table 1.)

4. REPAIR/REPLACEMENT.
(See figure 1.)

a. If excess leakage is suspected past detail-6 or -7 packing replace with new packings.

b. Replace leaking detail-3 relief valve. If required, adjust relief valve to 11 pounds per square inch gage, plus 1 pound, minus zero.

c. Missing or damaged detail-8 CAUTION tag will require replacement with locally manufactured replacement. (See figure 1.)

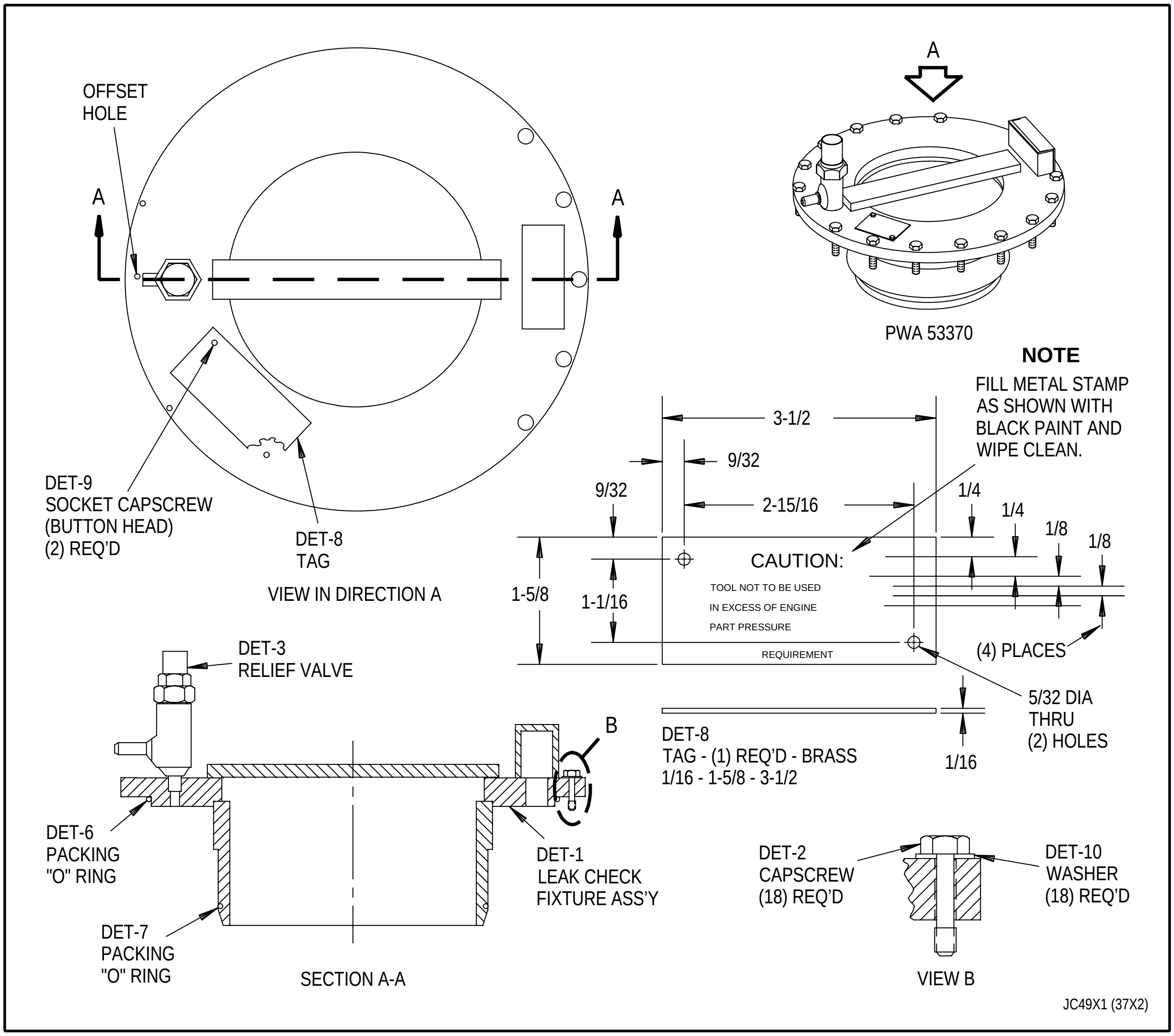


Figure 1. PWA 53370 Fixture

Table 1. Serviceable and Replacement Limits

Frequency	Inspection Area	Inspection Method and Condition	Maximum Serviceable Limits	Maximum Reparable Limits	Corrective Action
Prior to use	Entire tool	Visual for nicks, burrs, broken, or missing details	None	None	Blend, use fine stone or fine file. Repair or replace details.
	Detail-1 fixture assembly	Visual for nicks, burrs, chipped hardcoat, or damaged seal groove	None	None	Blend or replace with NHA.
	Detail-2 capscrew	Visual for hex or thread damaged	None	None	Replace.
	Detail-3 relief valve	Visual for damage or leakage	None	None	Replace.
	Detail-6, -7 packing O-ring	Visual for cuts, nicks, or leakage	None	None	Replace.
	Detail-8 tag	Visual for tears or missing tag	None	None	Locally manufacture replacement.
	Detail-9 socket head capscrew	Visual for socket or thread damage	None	None	Replace.
	Detail-10 washer	Damage	None	None	Replace.

WORK PACKAGE

TECHNICAL PROCEDURES

PWA 53878 PULLER - NO. 5 BEARING OUTER RACE

EFFECTIVITY: ENGINE MODEL F100-PW-229

LIST OF EFFECTIVE WP PAGES

Total Number of Pages in this WP is 8

PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.
1 - 7	0				
8 Blank	0				

REFERENCE MATERIAL REQUIRED

Title	Number
Support Equipment and Numerical Tool List - - - - - - - - - - -	T.O. 2J-F100-53-3
Hydraulic Cylinder - Repair and Maintenance - - - - - - - -	WP 006 00

APPLICABLE TIME COMPLIANCE TECHNICAL ORDERS

None

CONSUMABLE MATERIALS

Nomenclature	Specification/Vendor Part Number
Cloth, lint-free	-
Oil, preservative	MIL-L-6081, Grade 1010
Solvent, petroleum	P-D-680, Type II

EXPENDABLE ITEMS

None

APPLICABLE SUPPORT EQUIPMENT

None

ILLUSTRATED SUPPORT EQUIPMENT

None

1. INTRODUCTION.

a. This work package contains instructions for maintenance of PWA 53878 puller.

2. CLEANING.

a. Use soft bristle brush to loosen dirt and remove foreign material.

b. Remove grease using P-D-680, Type II cleaning solvent or equivalent. Wipe solvent from tool with clean, dry, lint-free cloth.

c. Dry with compressed air at 30 psig maximum discharge pressure.

3. INSPECTION.

(See Figure 1 and Table 1.)

a. Inspect PWA 53878 puller. (See figure 1 and table 1.)

4. REPAIR/REPLACEMENT.

(See figure 1.)

NOTE

Complete disassembly and assembly instructions are provided for the tool, however, it is only necessary to disassemble tool to the extent of replacing or repairing worn or damaged details.

a. Disassembly.

(1) Remove detail-11 flange nut from rod. Slide cylinder off of rod.

(2) Remove detail-12 hydraulic cylinder from detail-2 puller body assembly.

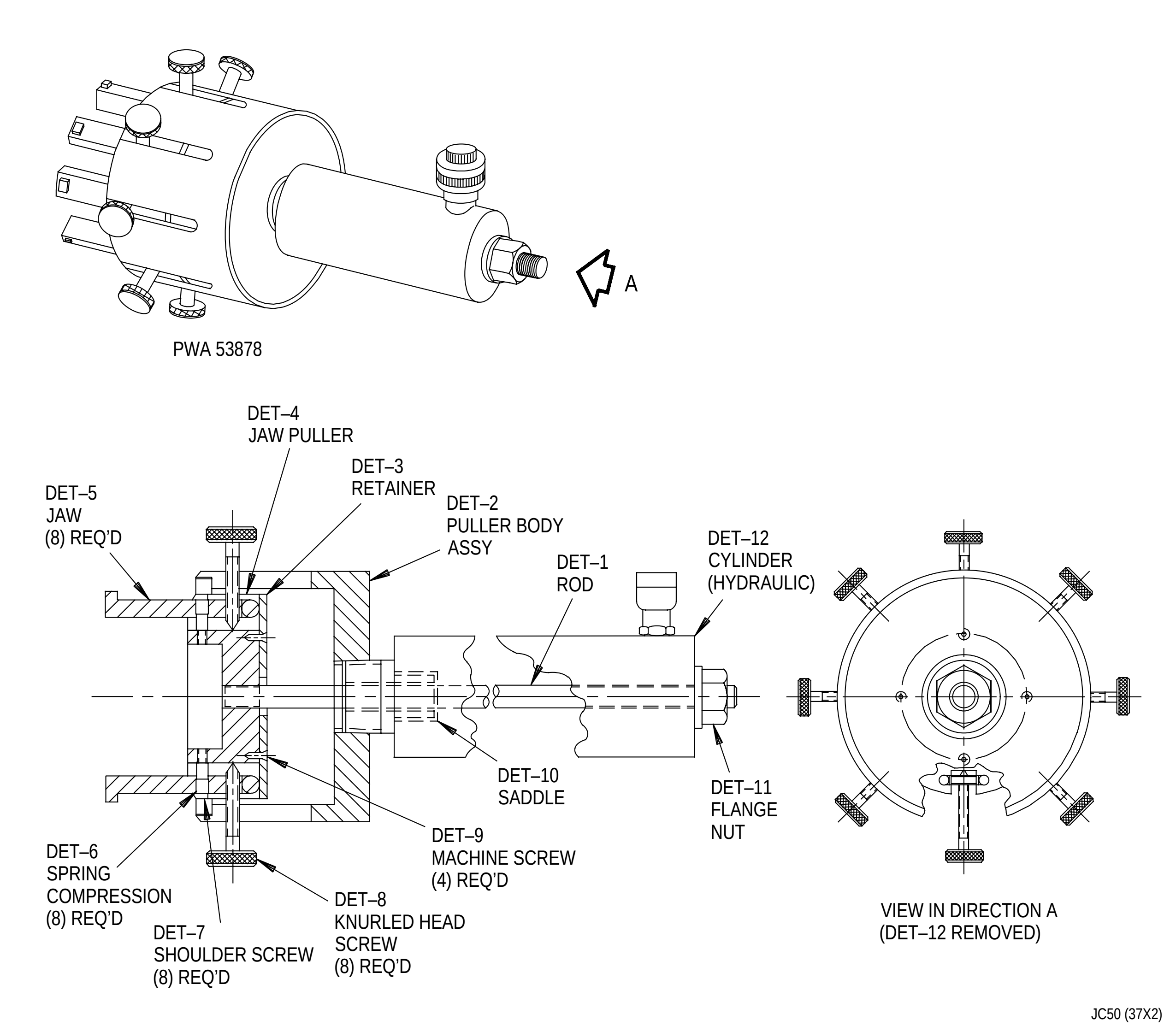


Figure 1. PWA 53878 Puller

NOTE

Repair or replacement of PWA 53878 detail-12 hydraulic cylinder is limited to parts itemized in repair kit. Refer to T.O. 2J-F100-53-3, WP 006 00

(3) Remove detail-10 threaded saddle from cylinder assembly.

(4) Remove detail-1 rod from detail-4 jaw puller.

(5) Remove four detail-9 machine screws that secure detail-3 retainer to jaw puller.

(6) Remove eight detail-8 knurled head screws from jaws.

(7) Remove eight detail-7 shoulder screws and detail-6 compression springs.

(8) Remove eight detail-5 jaws from slots of detail-4 jaw puller.

b. Repair of details. Not applicable.

c. Assembly.

(1) Insert eight detail-5 jaws in slots of detail-4 jaw puller. Fit pin end of jaw into recess.

(2) Install a detail-6 compression spring on each of eight detail-7 shoulder screws.

(3) Position detail-7 screws with springs through holes in eight jaws. Thread screws in detail-4 jaw puller and tighten firmly.

(4) Install detail-3 retainer on jaw puller and secure with four detail-9 machine screws.

(5) Install eight detail-8 knurled head screws into jaws.

(6) Install detail-1 rod into threaded end of jaw puller. Tighten handtight.

(7) Install detail-10 saddle into detail-12 hydraulic cylilinder.

(8) Install detail-2 puller body assembly on saddle. Tighten handtight.

(9) Insert detail-1 rod through hydraulic cylinder. Align knurled head screws with slots in puller body assembly.

(10) Secure rod with detail-11 flange nut.

d. Apply MIL-L-6081, Grade 1010 corrosion preventive oil prior to storage.

Table 1. Serviceable and Replacement Limits

Frequency	Inspection Area	Inspection Method and Condition	Maximum Serviceable Limits	Maximum Reparable Limits	Corrective Action
Prior to use	Entire tool	Visual for nicks, burrs, broken or missing details	None	None	Blend, use fine stone or fine file. Repair or replace details.
	Detail-1 rod	Visual for bent rod or damaged threads	None	None	Replace.
	Detail-2 puller body assembly	Visual for slot damage missing or damaged polychloro-prene covering	None	None	Replace.
	Detail-3 retainer	Visual for nicks and burrs	None	None	Blend.
	Detail-4 jaw puller	Visual for slot or thread damage	None	None	Blend or replace.
	Detail-5 jaw	Visual for nicks and burrs	None	None	Blend or replace.
	Detail-6 compression spring	Loss of spring tension	None	None	Replace.

Table 1. Serviceable and Replacement Limits (continued)

Frequency	Inspection Area	Inspection Method and Condition	Maximum Serviceable Limits	Maximum Reparable Limits	Corrective Action
Prior to use (continued)	Detail-7 shoulder screw	Visual for nicks, burrs, socket or thread damage	None	None	Replace.
	Detail-8 knurled head screw	Visual for bent or damaged threads	None	None	Replace.
	Detail-9 machine screw	Visual for damaged threads	None	None	Replace.
	Detail-10 saddle	Visual for thread damage	None	None	Chase thread or replace.
	Detail-11 flange nut	Visual for thread or wrench flat damage	None	None	Chase threads or replace.
	Detail-12 hydraulic cylinder	Leakage	None	None	Replace U-cups. Refer to T.O. 2J-F100-53-3, WP 006 00.
As required	Entire tool	Visual for plating	No worn through spots	None	Replate AMS 2404 0.0002 to 0.0004 inch thick.

WORK PACKAGE

TECHNICAL PROCEDURES

PWA 53889 PUSHER - NO. 1 BEARING AND SEAL SEAT

EFFECTIVITY: ENGINE MODEL F100-PW-229

LIST OF EFFECTIVE WP PAGES

Total Number of Pages in this WP is 6

PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.
1 - 6	0				

REFERENCE MATERIAL REQUIRED

Title	Number
Support Equipment and Numerical Tool List ----------	T.O. 2J-F100-53-3
Hydraulic Cylinder - Repair and Maintenance -------	WP 006 00

APPLICABLE TIME COMPLIANCE TECHNICAL ORDERS

None

CONSUMABLE MATERIALS

Nomenclature	Specification/Vendor Part Number
Cloth, lint-free	-
Oil, preservative	MIL-L-6081, Grade 1010
Solvent, petroleum	P-D-680, Type II

EXPENDABLE ITEMS

None

APPLICABLE SUPPORT EQUIPMENT

None

ILLUSTRATED SUPPORT EQUIPMENT

None

1. INTRODUCTION.

a. This work package contains instructions for maintenance of PWA 53889 pusher.

2. CLEANING.

a. Use soft bristle brush to loosen dirt and remove foreign material.

b. Remove grease using P-D-680, Type II cleaning solvent or equivalent. Wipe solvent from tool with clean, dry, lint-free cloth.

c. Dry with compressed air at 30 psig maximum discharge pressure.

3. INSPECTION.
(See Figure 1 and Table 1.)

a. Inspect PWA 53889 pusher. (See figure 1 and table 1.)

4. REPAIR/REPLACEMENT.
(See figure 1.)

NOTE

Complete disassembly and assembly instructions are provided for the tool, however, it is only necessary to disassemble tool to the extent of replacing or repairing worn or damaged details.

a. Disassembly.

(1) Remove detail-1 flange nut from cylinder coupler end of detail-4 shaft. Separate shaft assembly from cylinder.

(2) Remove detail-2 hydraulic cylinder and saddle from detail-3 pusher.

(3) Remove detail-8 saddle from hydraulic cylinder plunger.

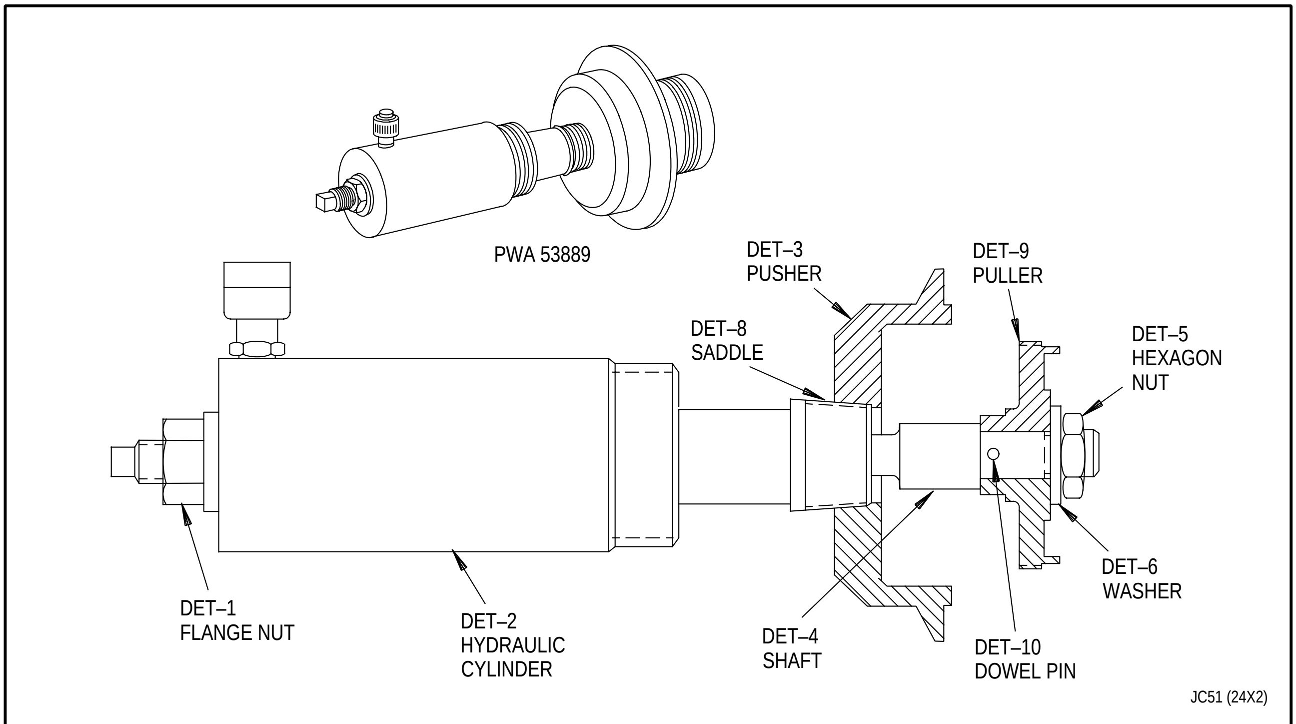


Figure 1. PWA 53889 Pusher

NOTE

Repair or replacement of PWA 53889, detail-2 hydraulic cylinder and coupler is limited to parts itemized in repair kit. Refer to T.O. 2J-F100-53-3, WP 006 00.

(4) Remove detail-5 hexagon nut and detail-6 washer from detail-4 shaft.

(5) Remove detail-9 puller from shaft.

(6) Press or drift out detail-10 dowel pin.

b. Repair of details. Not applicable.

c. Assembly.

(1) Press detail-10 dowel pin through detail-4 shaft, equally both sides.

(2) Install detail-9 puller on shaft with slot over dowel pin.

(3) Install detail-6 washer and detail-5 hexagon nut. Torque nut 2100 to 2300 pound-inches.

(4) Install detail-8 saddle handtight in plunger of hydraulic cylinder.

(5) Install detail-3 pusher handtight on saddle.

(6) Install detail-4 shaft with puller installed, through detail-3 pusher and detail-2 hydraulic cylinder.

(7) Install detail-1 flange nut fingertight on detail-4 shaft.

d. Apply MIL-L-6081, Grade 1010 corrosion preventive oil prior to storage.

Table 1. Serviceable and Replacement Limits

Frequency	Inspection Area	Inspection Method and Condition	Maximum Serviceable Limits	Maximum Reparable Limits	Corrective Action
Prior to use	Entire tool	Visual for nicks, burrs, broken or missing details	None	None	Blend, use fine stone or fine file. Repair or replace details.
	Detail-1 flange nut	Visual for thread or wrench flat damage	None	None	Replace.

Table 1. Serviceable and Replacement Limits (continued)

Frequency	Inspection Area	Inspection Method and Condition	Maximum Serviceable Limits	Maximum Reparable Limits	Corrective Action
Prior to use (continued)	Detail-2 hydraulic cylinder	Leakage	None	None	Replace U-cups. Refer to T.O. 2J-F100-53-3, WP 006 00.
	Detail-3 pusher	Visual for nicks, burrs, or thread damage	None	None	Blend or replace.
	Detail-4 shaft	Visual for thread damage or bent condition	None	None	Replace
	Detail-5 hexagon nut	Visual for thread or wrench flat damage	None	None	Replace.
	Detail-6 washer	Visual for damage	None	None	Replace.
	Detail-8 saddle	Visual for thread damage	None	None	Replace.
	Detail-9 puller	Visual for nicks, burrs, or thread damage	None	None	Blend or replace.
	Detail-10 dowel pin	Damage	None	None	Replace.
As required		Visual for plating	No bare spots allowed	None	Electroless nickel plate per AMS 2404.

WORK PACKAGE

TECHNICAL PROCEDURES

PWA 51415 SUPPORT - TRANSFER ADAPTER

EFFECTIVITY: ENGINE MODEL F100-PW-229

LIST OF EFFECTIVE WP PAGES

Total Number of Pages in this WP is 4

PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.
1	28	2 - 3	6	4	28

REFERENCE MATERIAL REQUIRED

None

APPLICABLE TIME COMPLIANCE TECHNICAL ORDERS

None

CONSUMABLE MATERIALS

Nomenclature	Specification/Vendor Part Number
Oil, preservative	MIL-L-6081, Grade 1010
Solvent, petroleum	P-D-680, Type II, or Type III

EXPENDABLE ITEMS

None

APPLICABLE SUPPORT EQUIPMENT

None

ILLUSTRATED SUPPORT EQUIPMENT

None

1. INTRODUCTION.

a. This work package contains maintenance instructions for PWA 51415 adapter.

2. CLEANING.

a. Use soft bristle brush to loosen dirt and remove foreign material from adapter.

b. Remove grease from adapter using P-D-680, Type II or Type III cleaning solvent or equivalent. Wipe solvent from adapter with clean, dry, lint-free cloth.

c. Dry adapter with compressed air at 30 psig maximum discharge pressure.

3. INSPECTION.

(See Figure 1 and Table 1.)

a. Dead load test adapter by subjecting adapter to 4000 pound compression load (200% of work load) for minimum of 3 minutes as shown in figure 1.

b. Inspect adapter for evidence of permanent bending or setting of brackets and support assembly, cracked or separated welds or any other signs of failure.

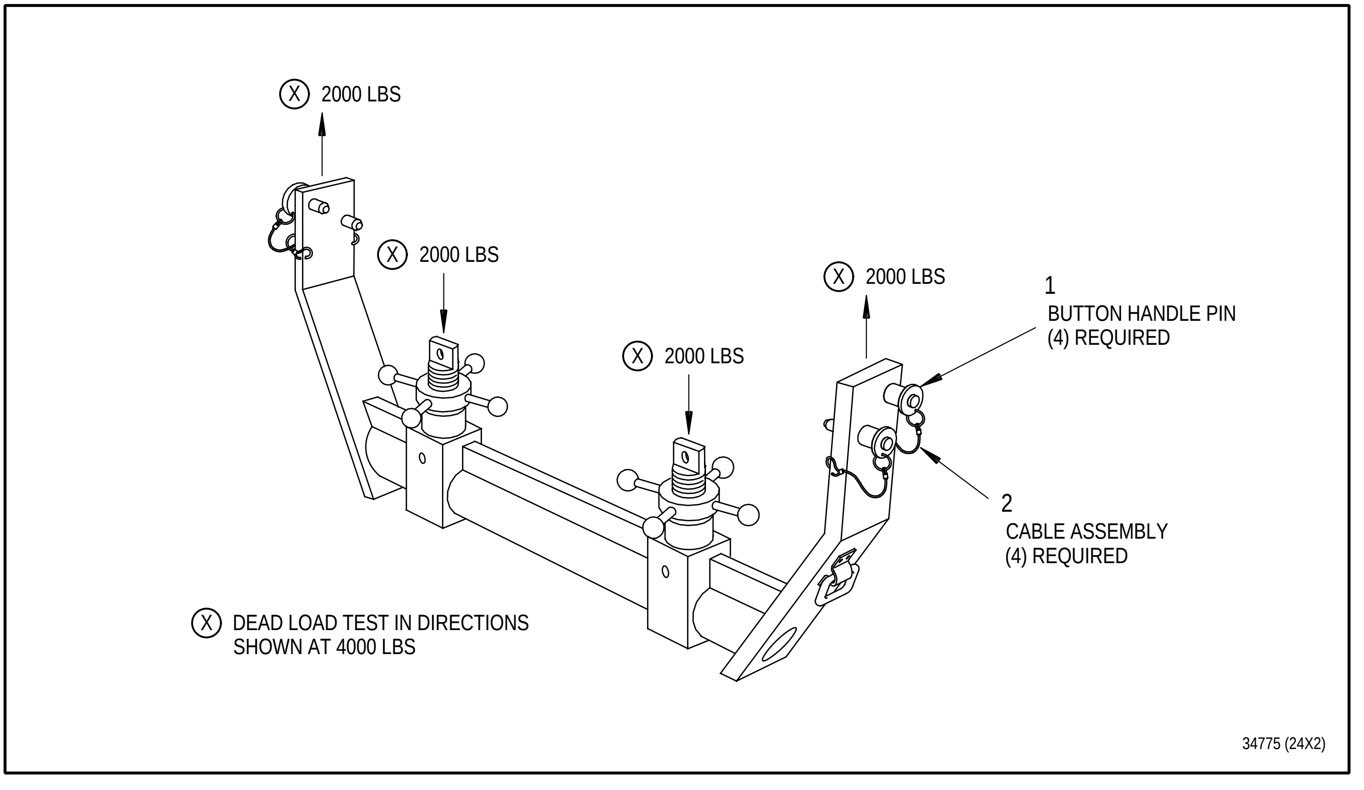


Figure 1. PWA 51415 Adapter

Table 1. Serviceable and Replacement Limits

Frequency	Inspection Area	Inspection Method And Condition	Maximum Serviceable Limits	Maximum Reparable Limits	Corrective Action
Annual	All welds	FPI for cracks	Not serviceable	Not reparable	Replace detail or assembly.
As required	Entire adapter	Dead load test	4000 pounds	None	Replace adapter.
As required	All welds	FPI for cracks	None allowed	None	Replace adapter.
As required	Cable(2)	Visual for broken or frayed cables	None allowed	None	Replace cable.
As required	Pin(1)	Visual for wear grooves and distortion	None allowed	None	Replace pins.

4. REPAIR/REPLACEMENT.

a. Replace details as required.

b. Apply MIL-L-6081, Grade 1010 corrosion preventive oil prior to storage.

WORK PACKAGE

TECHNICAL PROCEDURES

PWA 51920 ADAPTER - REAR TRANSFER

EFFECTIVITY: ENGINE MODEL F100-PW-229

LIST OF EFFECTIVE WP PAGES

Total Number of Pages in this WP is 6

PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.
1	28	5	28	6	6
2 - 4	6				

REFERENCE MATERIAL REQUIRED

None

APPLICABLE TIME COMPLIANCE TECHNICAL ORDERS

None

CONSUMABLE MATERIALS

Nomenclature	Specification/Vendor Part Number
Oil, preservative	MIL-L-6081, Grade 1010
Solvent, petroleum	P-D-680, Type II, or Type III

EXPENDABLE ITEMS

None

APPLICABLE SUPPORT EQUIPMENT

None

ILLUSTRATED SUPPORT EQUIPMENT

None

1. INTRODUCTION.

a. This work package contains maintenance instructions for PWA 51920 adapter.

2. CLEANING.

a. Use soft bristle brush to loosen dirt and remove foreign material from adapter.

b. Remove grease from adapter using P-D-680, Type II or Type III cleaning solvent or equivalent. Wipe solvent from adapter with clean, dry, lint-free cloth.

c. Dry adapter with compressed air at 30 psig maximum discharge pressure.

3. INSPECTION.

(See Figure 1 and Table 1.)

a. Dead load test the adapter by subjecting adapter to 4000 pound compression load (200% of work load) for a minimum of 3 minutes as shown in figure 1.

b. Inspect adapter for evidence of permanent bending or setting of brackets and support assembly, cracked or separated welds or any other signs of failure.

Legend to Figure 1.

1. Cable assembly, 8 required.
2. Ball lock pin, 2 required.
3. Ball lock pin, 4 required.
4. Ball lock pin, 2 required.
5. Head type liner, 4 required.
6. Bracket, 2 required.
7. Retaining plate, 4 required.
8. Socket head screw, 8 required.

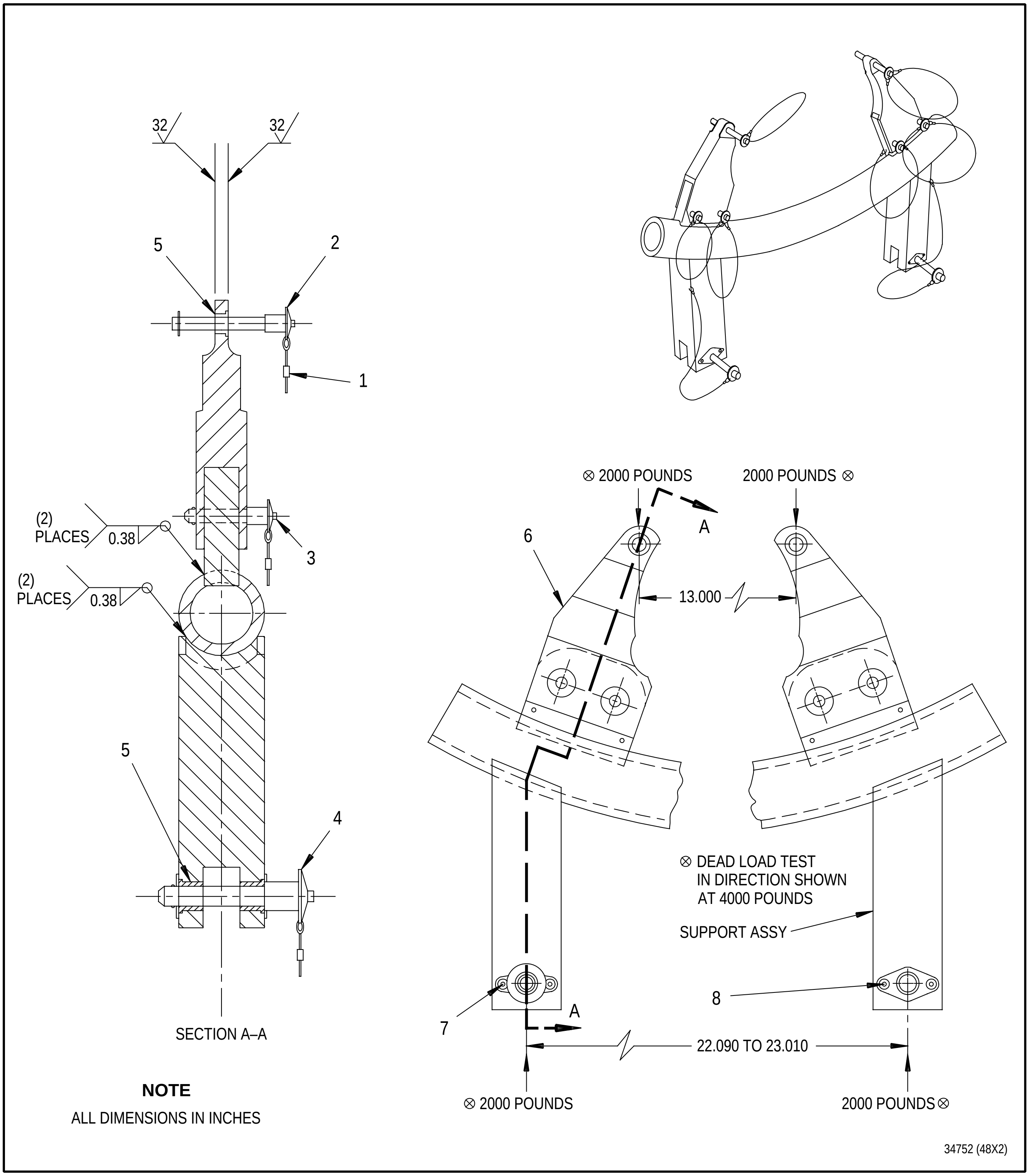


Figure 1. PWA 51920 Adapter

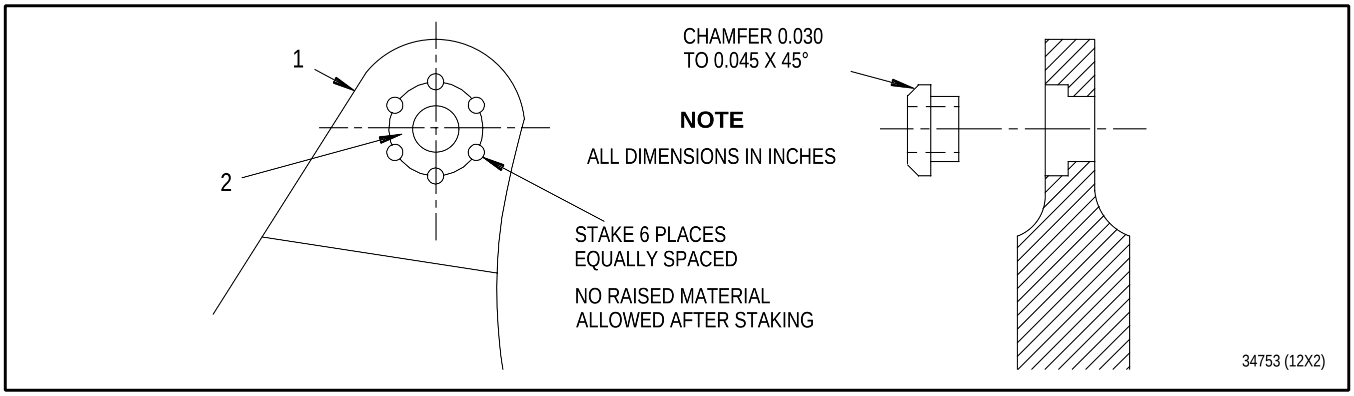
Table 1. Serviceable and Replacement Limits

Frequency	Inspection Area	Inspection Method And Condition	Maximum Serviceable Limits	Maximum Reparable Limits	Corrective Action
Annual	All welds	FPI for cracks	Not serviceable	Not reparable	Replace detail or assembly.
As required	Entire adapter	Dead load test	4000 pounds	None	Replace adapter.
As required	All welds	FPI for cracks	None allowed	None	Replace adapter.
As required	Cable(1)	Visual for broken or frayed cables	None allowed	None	Replace cable.
As required	Pins(2, 3, and 4)	Visual for wear grooves and distortion	None allowed	None	Replace pins.
As required	Head-type liner(5)	Loose fit with bracket(6)	None	None	Repair by staking per paragraph 4.

4. REPAIR/REPLACEMENT.
(See Figure 2.)

a. Stake head-type liner(2) as shown, if required.

b. Apply MIL-L-6081, Grade 1010 corrosion preventive oil prior to storage.



1. Bracket, 2 required.
2. Head type liner, 4 required.

Figure 2. Head Type Liner - Repair

WORK PACKAGE

TECHNICAL PROCEDURES

PWA 51921 ADAPTER - FRONT TRANSFER

EFFECTIVITY: ENGINE MODEL F100-PW-229

LIST OF EFFECTIVE WP PAGES

Total Number of Pages in this WP is 6

REFERENCE MATERIAL REQUIRED

None

APPLICABLE TIME COMPLIANCE TECHNICAL ORDERS

None

CONSUMABLE MATERIALS

Nomenclature	Specification/Vendor Part Number
Oil, preservative	MIL-L-6081, Grade 1010
Solvent, petroleum	P-D-680, Type II, or Type III

EXPENDABLE ITEMS

None

APPLICABLE SUPPORT EQUIPMENT

None

ILLUSTRATED SUPPORT EQUIPMENT

None

1. INTRODUCTION.

a. This work package contains maintenance instructions for PWA 51921 adapter.

2. CLEANING.

a. Use soft bristle brush to loosen dirt and remove foreign material from adapter.

b. Remove grease from adapter using P-D-680, Type II or Type III cleaning solvent or equivalent. Wipe solvent from adapter with clean, dry, lint-free cloth.

c. Dry adapter with compressed air at 30 psig maximum discharge pressure.

3. INSPECTION.

(See Figure 1 and Table 1.)

a. Dead load test the adapter by subjecting adapter to 4000 pound compression load (200% of work load) for a minimum of 3 minutes as shown in figure 1.

b. Inspect adapter for evidence of permanent bending or setting of brackets and support assembly, cracked or separated welds or any other signs of failure.

Legend to Figure 1.

1. Ball lock pin, 2 required.
2. Ball lock pin, 2 required.
3. Cable assembly, 6 required.
4. Ball lock pin, 2 required.

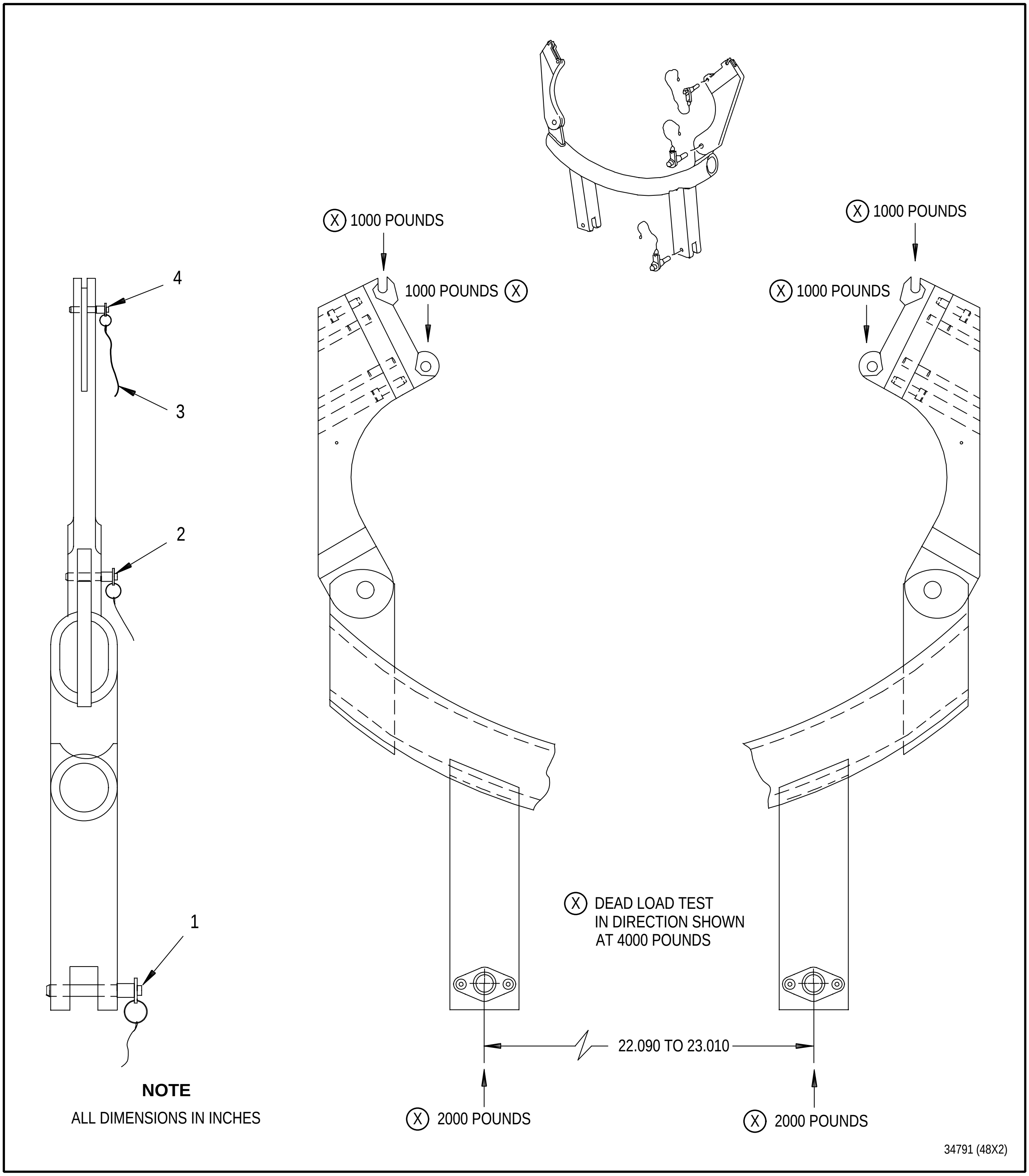


Figure 1. PWA 51921 Adapter

Table 1. Serviceable and Replacement Limits

Frequency	Inspection Area	Inspection Method And Condition	Maximum Serviceable Limits	Maximum Reparable Limits	Corrective Action
Annual	All welds	FPI for cracks	Not serviceable	Not reparable	Replace detail or assembly.
As required	Entire adapter	Dead load test	4000 pounds	None	Replace adapter.
As required	All welds	FPI for cracks	None allowed	None	Replace adapter.
As required	Cable(3)	Visual for broken or frayed cables	None allowed	None	Replace cable.
As required	Pins (1, 2, and 4)	Visual for wear grooves and distortion	None allowed	None	Replace pins.

4. REPAIR/REPLACEMENT.

a. Replace details as required.

b. Apply MIL-L-6081, Grade 1010 corrosion preventive oil prior to storage.

WORK PACKAGE

TECHNICAL PROCEDURES

PWA 56018 ROTATOR - BORESCOPE INSPECTION

EFFECTIVITY: ENGINE MODEL F100-PW-229

LIST OF EFFECTIVE WP PAGES

Total Number of Pages in this WP is 14

PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.
1 - 14	4				

REFERENCE MATERIAL REQUIRED

Title	Number
Standard Maintenance Procedures	T.O. 2-1-111

APPLICABLE TIME COMPLIANCE TECHNICAL ORDERS

None

CONSUMABLE MATERIALS

Nomenclature	Specification/Vendor Part Number
Brush, soft bristle	-
Cloth, lint-free	-
Compound, thread locking	MIL-S-22473, grade C, color blue
Lubricant, aircraft turbine engine, synthetic	MIL-L-7808
Lubricant, penetrating	Tri-Flow, PMC 9903
Solvent, petroleum	P-D-680 Type II or III

EXPENDABLE ITEMS

Nomenclature	Part Number	Quantity
Dowel pin	MS16555-28	1

APPLICABLE SUPPORT EQUIPMENT

None

ILLUSTRATED SUPPORT EQUIPMENT

None

1. INTRODUCTION.

a. This work package contains maintenance instructions for PWA 56018 rotator.

2. CLEANING.

a. Use soft bristle brush to loosen dirt and remove foreign material.

b. Remove grease and oil using P-D-680, Type II or III cleaning solvent or equivalent. Wipe solvent from tool with clean, dry, lint free cloth.

c. Dry with compressed air at 30 psig maximum discharge pressure.

d. Lightly coat gears and shafts with engine oil MIL-L-7808 after cleaning.

3. INSPECTION.

(See Figure 1 Table 1.)

Table 1. Serviceable and Replacement Limits

Frequency	Inspection Area	Inspection Method And Condition	Maximum Serviceable Limits	Maximum Reparable Limits	Corrective Action
Prior to use	1. Clamp Assembly	Visual for nicks, burrs, broken or missing details	None	None	Blend, use fine stone or fine file. Repair per paragraph 4 or replace tool.
As required	Rotator	Manually rotate tool	Tool fails to rotate freely	None	If tool binds or fails to rotate, repair per paragraph 4.

4. ROTATOR REPAIR.
(See Figure 1 and 2.)

a. Disassemble rotator into modules as follows: (see figure 1, sheet 1).

(1) Remove clamp assembly(1) by disengaging pin(2).

(2) Remove housing(3) by removing 10 cap screws(4) and two cap screws(5).

(3) Remove scale(6) by removing two flat head screws(7).

(4) Remove gear drive module(8) as a unit as follows:

(a) Scribe mark on shaft(9) to indicate position of set screw(10).

(b) Loosen set screw.

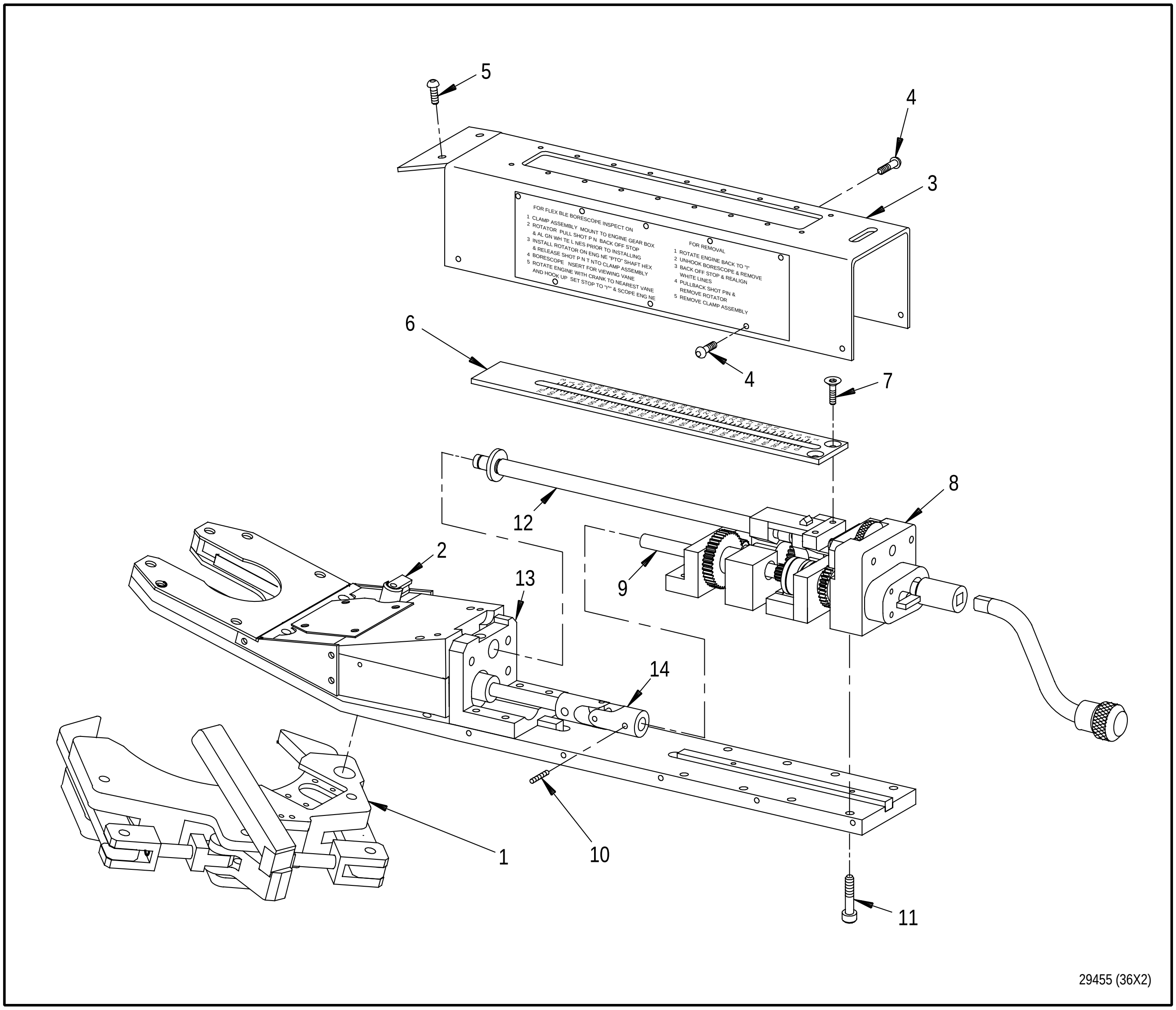


Figure 1. PWA 56018 Rotator - Disassembly (Sheet 1 of 4)

Legend for figure 1

Number	Nomenclature	Number	Nomenclature
1.	Clamp assembly	23.	Screw, cap, 6 each
2.	Pin	24.	Cover plate, 2 each
3.	Housing	25.	Case, 2 each
4.	Cap screw, 10 each	26.	Screw, cap, 6 each
5.	Cap screw, 2 each	27.	Module, pinion gear
6.	Scale	28.	Block
7.	Screw, flat head, 2 each	29.	Cap screw, 2 each
8.	Module, gear drive	30.	Snap ring, 2 each
9.	Shaft	31.	Spindle
10.	Screw, set	32.	Snap ring
11.	Cap screw, 16 each	33.	Washer, backup
12.	Screw, counter	34.	Pin
13.	Support assembly	35.	Pinion gear
14.	Joint, universal	36.	Shaft
15.	Support assembly	37.	Cap screw, 2 each
16.	Assembly, pinion shaft	38.	Assembly, bearing cap
17.	Washer, thrust	39.	Joint, universal
18.	Bushing	40.	Block
19.	Screw, cap, 3 each	41.	Dowel pin
20.	Nameplate	42.	Washer, thrust
21.	Screw, cap, 4 each	43.	Hole
22.	Retainer	44.	Washer, thrust

(c) Remove 16 cap screws(11) while holding gear drive module(8) to ensure gear drive module does not become unstacked.

(d) Remove gear drive module by sliding module back until counter screw assembly(12) clears shaft support assembly(13) and shaft(9) clears universal joint(14).

b. Replace pinion shaft assembly as follows (see sheet 2):

(1) Remove counter screw assembly(12) from gear drive module.

(2) Slide shaft support assembly(15) forward to remove pinion shaft assembly(16). Discard thrust washer(17).

(3) Remove bushing(18) from shaft support assembly(15) using an arbor press.

(4) Install PWA 56018-80-3 bushing in shaft support assembly(15) using an arbor press.

(5) Install PWA 56018-108 thrust washer on PWA 56018-107 pinion shaft assembly.

(6) Lubricate pinion shaft assembly with Tri-Flow penetrating lubricant or equivalent and install in gear drive module.

(7) Install shaft support assembly(15) on gear drive module.

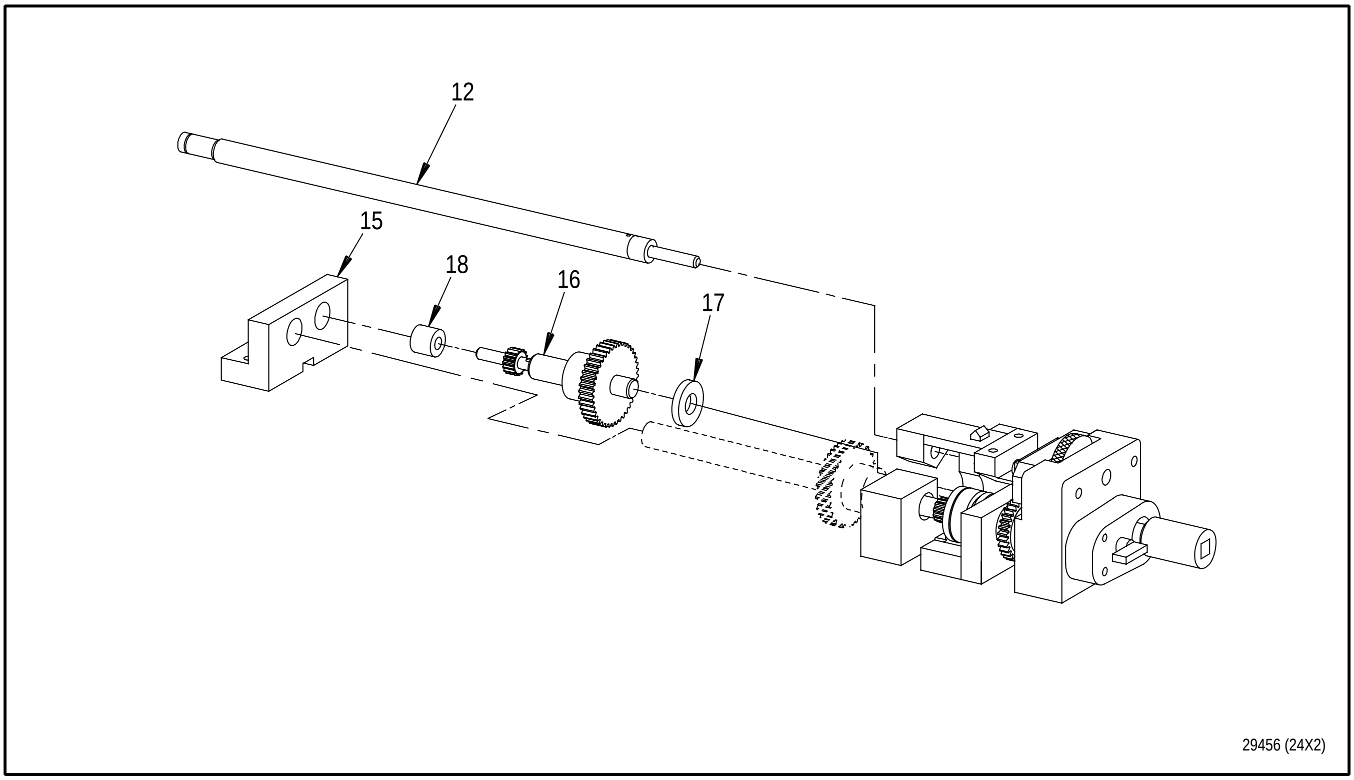


Figure 1. PWA 56018 Rotator - Disassembly (Sheet 2 of 4)

c. Replace bevel/spur gear assembly as follows (see sheet 3):

(1) Remove shaft support assembly(13) by removing three cap screws (19).

(2) Remove nameplate(20) by removing four cap screws(21).

(3) Remove retainer(22) by removing six cap screws(23).

(4) Remove two cover plates(24) and two cases(25) by removing six cap screws(26).

(5) Remove pinion gear module(27) as follows:

(a) Remove block(28) by removing two cap screws(29).

(b) Remove two snap rings(30) from spindles(31).

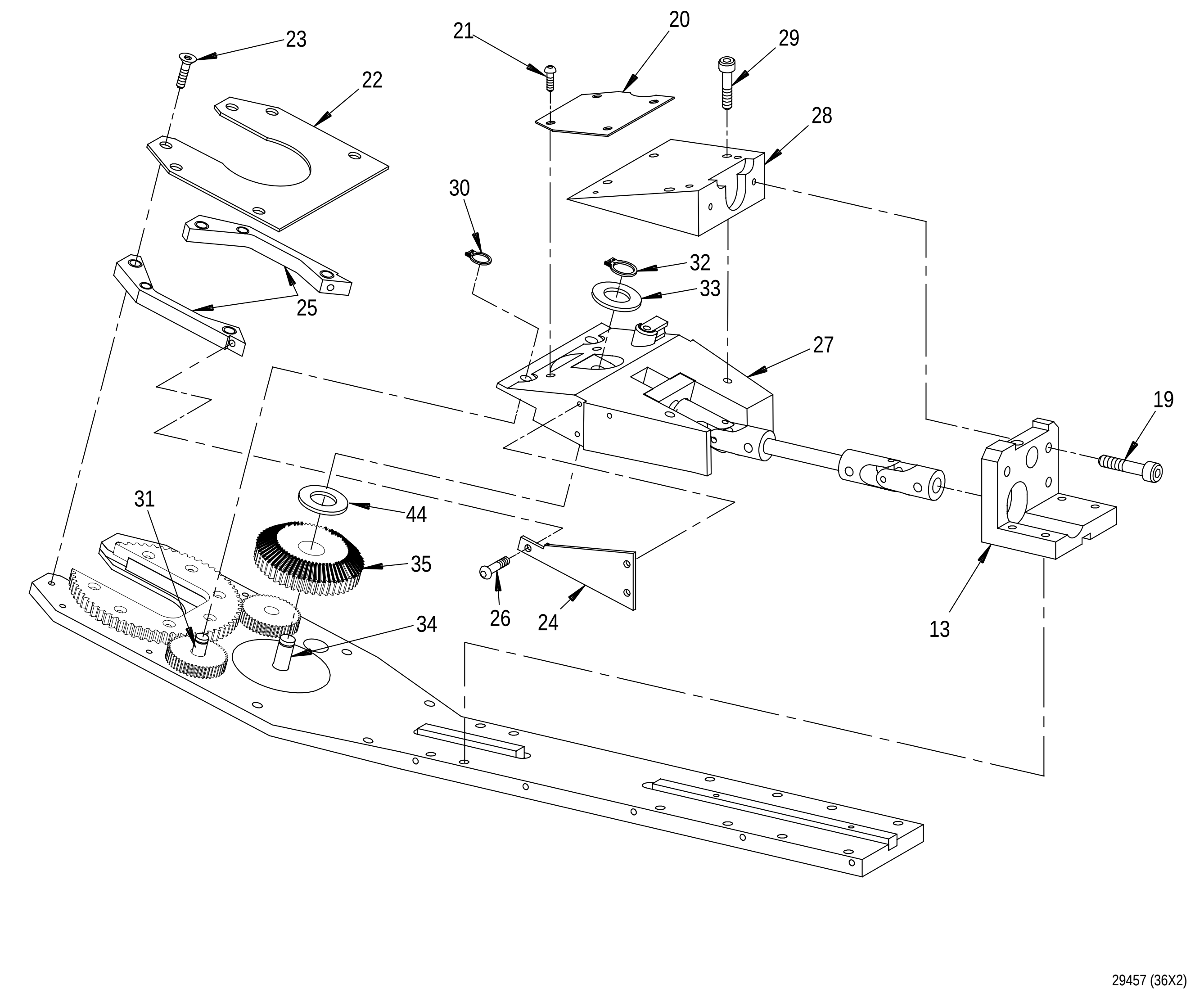


Figure 1. PWA 56018 Rotator - Disassembly (Sheet 3 of 4)

(c) Remove snap ring(32) and backup washer(33) from pin(34).

(d) Lift pinion gear module(27) off frame. If module will not move, tap pin and spindles through module until module will lift off frame.

(6) Remove bevel/spur gear assembly(35).

(7) Lubricate PWA 56018-106-1 and PWA 56018-106-5 bevel/ spur gear assembly with Tri-Flow penetrating lubricant or equivalent and install on pin(34).

(8) Install PWA 56018-109 thrust washer(44) on pin(34).

d. Replace pinion gear and shaft as follows (see sheet 4):

(1) Remove pinion gear and shaft(36) as follows:

(a) Remove two cap screws(37) from bearing cap assembly(38).

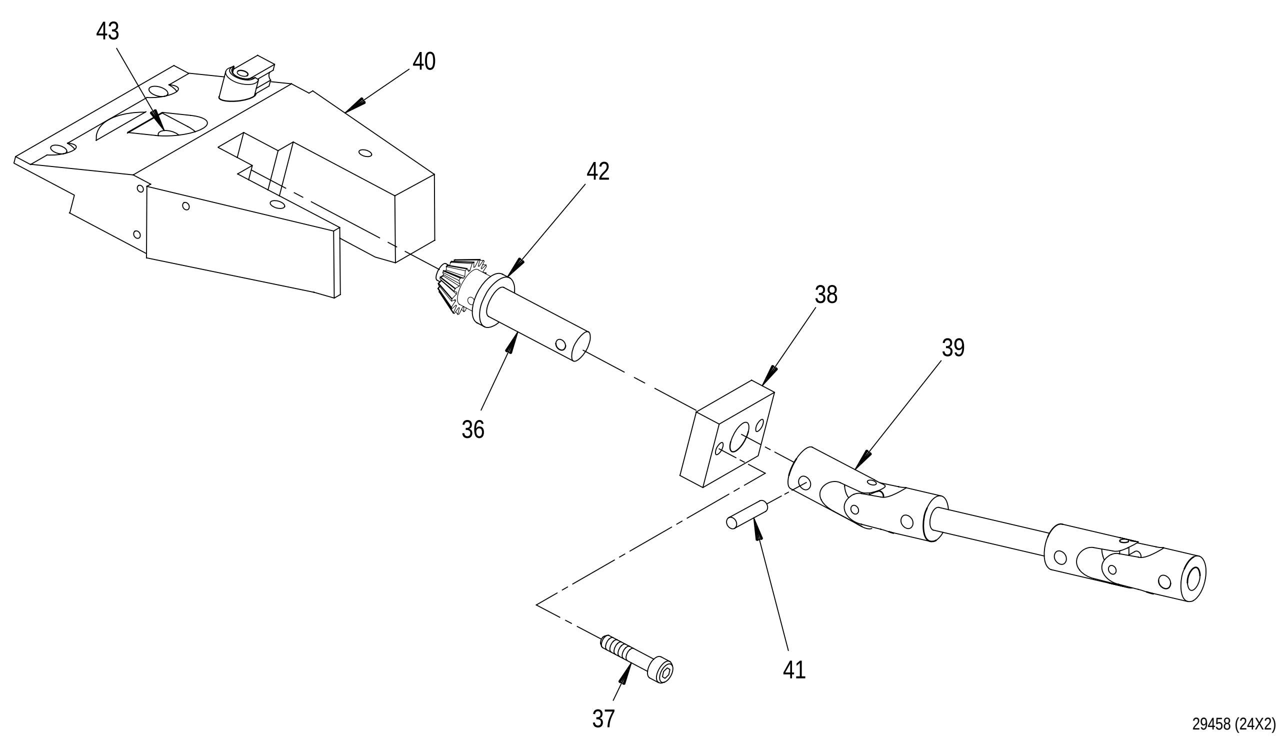


Figure 1. PWA 56018 Rotator - Disassembly (Sheet 4 of 4)

(b) Remove pinion gear and shaft(36), bearing cap assembly(38) and universal joint(39) as a unit from block(40).

(c) Remove dowel pin(41) using suitable drift and remove pinion gear and shaft(36) from universal joint(39).

(2) Install PWA 56018-106-2 pinion gear and PWA 56018-106-4 pinion shaft(36) as follows:

(a) Lubricate pinion gear with Tri-Flow penetrating lubricant or equivalent.

(b) Install PWA 56018-106-10 thrust washer(42) on pinion gear and shaft per sheet 4.

(c) Lubricate cap screws(37) with MIL-L-7808 engine oil or equivalent.

(d) Install pinion shaft in bearing cap assembly(38) and attach bearing cap assembly to block(40) by installing cap screws(37) finger tight.

(e) Set distance from center line of hole(43) to face of thrust washer(42) to 1.250 to 1.252 inches. Place shims between bearing cap assembly and block or reduce thickness of washer as required. When distance is set, torque 0.164-32 cap screws(37) per T.O. 2-1-111.

(f) Use feeler gauge to set 0.005 inch gap between block(40) and front of pinion gear.

(g) Slide universal joint(39) over pinion shaft and bottom out universal joint against bearing cap assembly(38) while maintaining 0.005 inch gap between gear and block.

(h) Mark location for hole on pinion shaft using dowel pin hole in universal joint as a guide.

(i) Drill 0.1255 to 0.1265 inch diameter hole in pinion shaft.

(j) Attach universal joint(39) to pinion shaft using MS16555-28 dowel pin.

e. Assembly (see Figure 2).

NOTE

- Lubricate all screw threads with MIL-L-7808 engine oil or equivalent.
- Torque all screws per T.O. 2-1-111.

(1) Install pinion gear module as follows:

(a) Install pinion gear module(27, sheet 1) on frame using four 0.164-32 cap screws(11).

(b) Install two snap rings(30) on spindles(31).

(c) Install backup washer(33) and snap ring(32) on pin(34).

(d) Install block(28) on pinion gear module(27) using two 0.250-20 cap screws(29).

(2) Install two cases(25) and retainer(22) by installing six cap screws(23) finger tight.

(3) Install two cover plates(24) by installing six cap screws(26) finger tight.

(4) Tighten six 0.164-32 cap screws(23).

(5) Tighten six 0.138-32 cap screws(26).

(6) Rotate shaft(15) through at least three revolutions clockwise and counterclockwise to ensure gears do not bind.

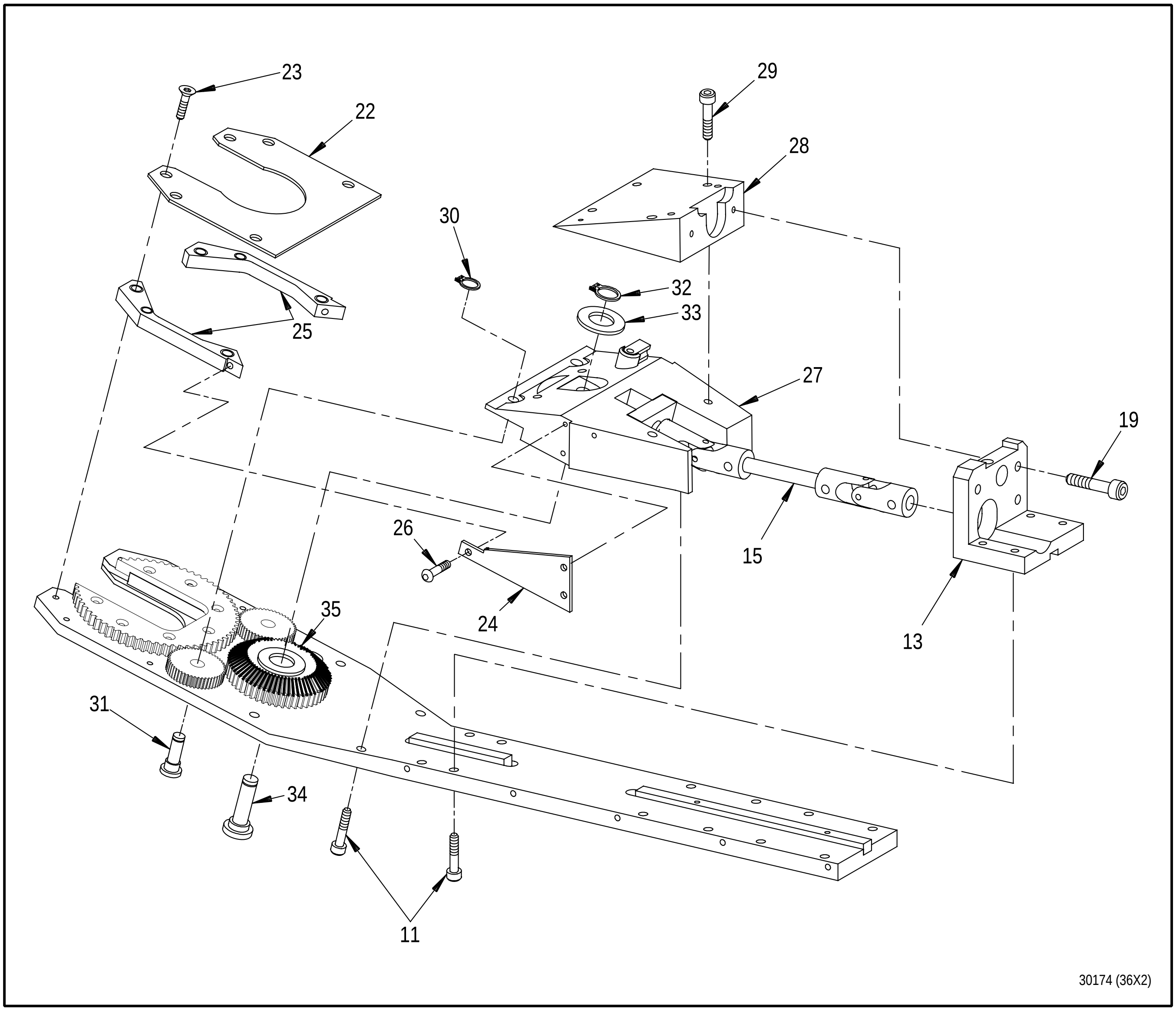


Figure 2. PWA 56018 Rotator - Assembly (Sheet 1 of 3)

Legend for figure 2

Number	Nomenclature	Number	Nomenclature
1.	Clamp assembly	20.	Nameplate
2.	Pin	21.	Screw, cap, 4 each
3.	Housing	22.	Retainer
4.	Cap screw, 10 each	23.	Screw, cap, 6 each
5.	Cap screw, 2 each	24.	Cover plate, 2 each
6.	Scale	25.	Case, 2 each
7.	Screw, flat head, 2 each	26.	Screw, cap, 6 each
8.	Module, gear drive	27.	Module, pinion gear
9.	Shaft	28.	Block
10.	Screw, set	29.	Cap screw, 2 each
11.	Cap screw, 16 each	30.	Snap ring, 2 each
12.	Screw, counter	31.	Spindle
13.	Support assembly	32.	Snap ring
14.	Joint, universal	33.	Washer, backup
15.	Shaft	34.	Pin
16.	Nut	35.	Screw, flat
17.	Screw, cap, 4 each	36.	Cap, retainer
18.	Ratchet assembly	37.	Washer, curved
19.	Screw, cap, 3 each		

(7) Install shaft support assembly(13) as follows:

(a) Install three cap screws(19) finger tight.

(b) Install four cap screws(11) finger tight.

(c) Tighten three 0.190-24 screws(19).

(d) Tighten four 0.164-32 screws(11).

(8) Install counter screw assembly(12, sheet 2) on gear drive module.

(9) Install scale(6) as follows:

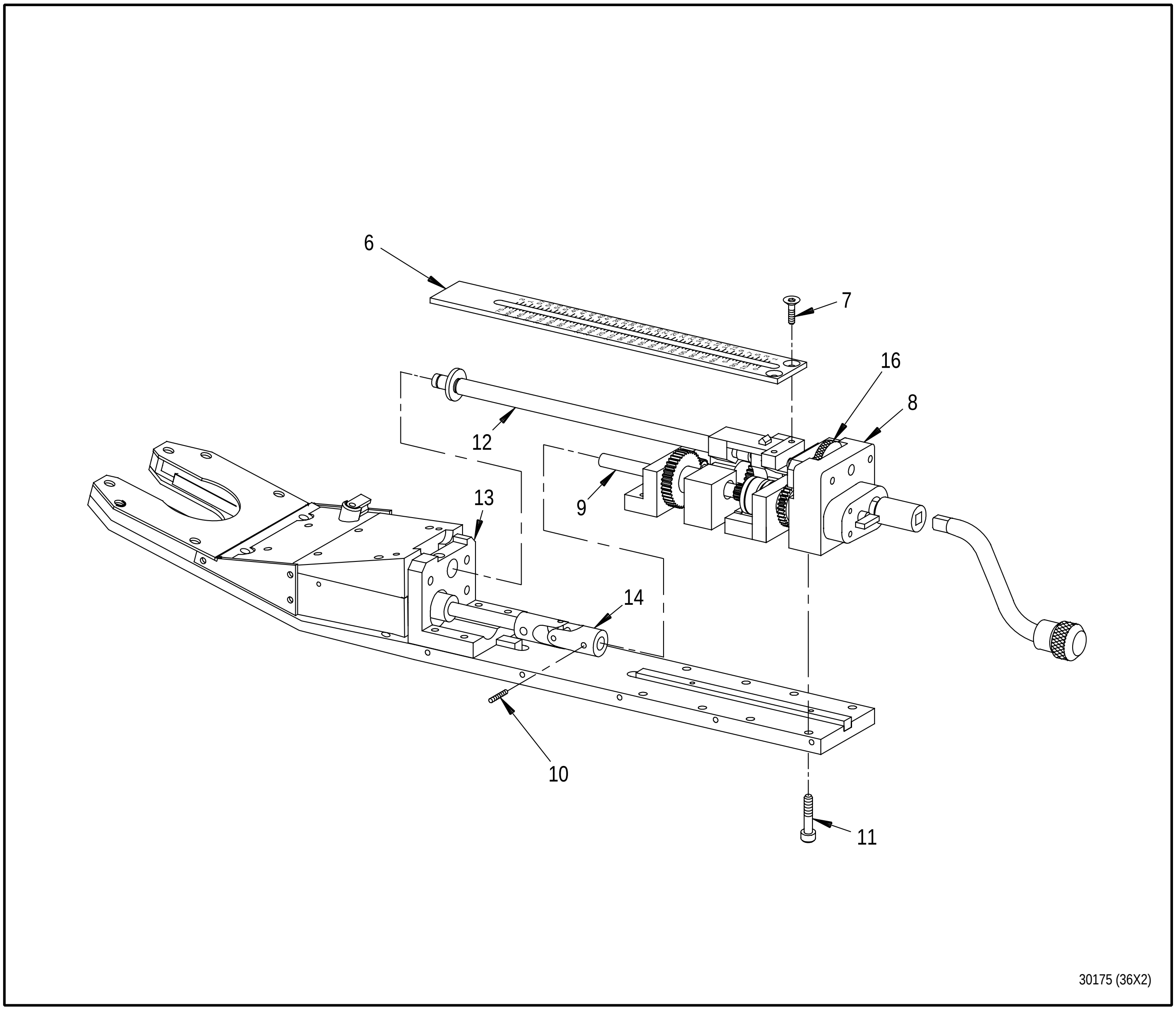


Figure 2. PWA 56018 Rotator - Assembly (Sheet 2 of 3)

(a) Install two 0.138-32 flat head screws(7).

(b) Ensure indicator on scale reads zero degrees.

(c) Ensure set nut(16) is in neutral position.

(10) Install gear drive module(8) on frame as a unit as follows:

(a) Ensure counter screw assembly(12) mates with shaft support assembly(13) and ensure shaft(9) mates with universal joint(14).

(b) Install eight cap screws(11) finger tight.

(c) Rotate gears in gear drive module through at least three revolutions to ensure they do not bind.

(d) Tighten eight 0.164-32 screws(11).

NOTE

Jaws of rotator shall be in fully open position before performing next step.

(e) Align universal joint(14) and shaft(9) using mark scribed in step a(3)(a). Install 0.190-32 set screw(10).

(11) Set clutch shaft assembly break away torque as follows (see sheet 3):

(a) Remove four cap screws(17).

(b) Rotate ratchet assembly(18) to expose flat screw(35).

(c) Remove flat screw(35) and retainer cap(36).

(d) If anti-rotation dowel pin has not been previously removed from retainer cap, use suitable drift to remove it.

(e) Apply MIL-S-22473, grade C, color blue thread locking compound to threads of flat screw(35).

(f) Replace flat screw and tighten until curved washers(37) are fully compressed. Torque screw an additional 3 to 5 pound-inches.

(g) Return rachet assembly to original position and install four 0.125-40 cap screws(46).

(12) Install housing(3) as follows:

(a) Install 10 0.112-40 cap screws(4). Put longer screws through plastic cover on housing.

(b) Install two 0.164-32 cap screws(5).

(13) Rotate rachet through at least three revolutions to ensure gears do not bind.

(14) Cross out revision letter on name plate(20) with metal stamp. Stamp 0.25 inch high capital ‘‘H’’ adjacent to previous revision letter. Fill with black paint and wipe clean.

(15) Install name plate with four 0.164-32 cap screws(21).

(16) Install clamp assembly(1) by engaging pin(2).

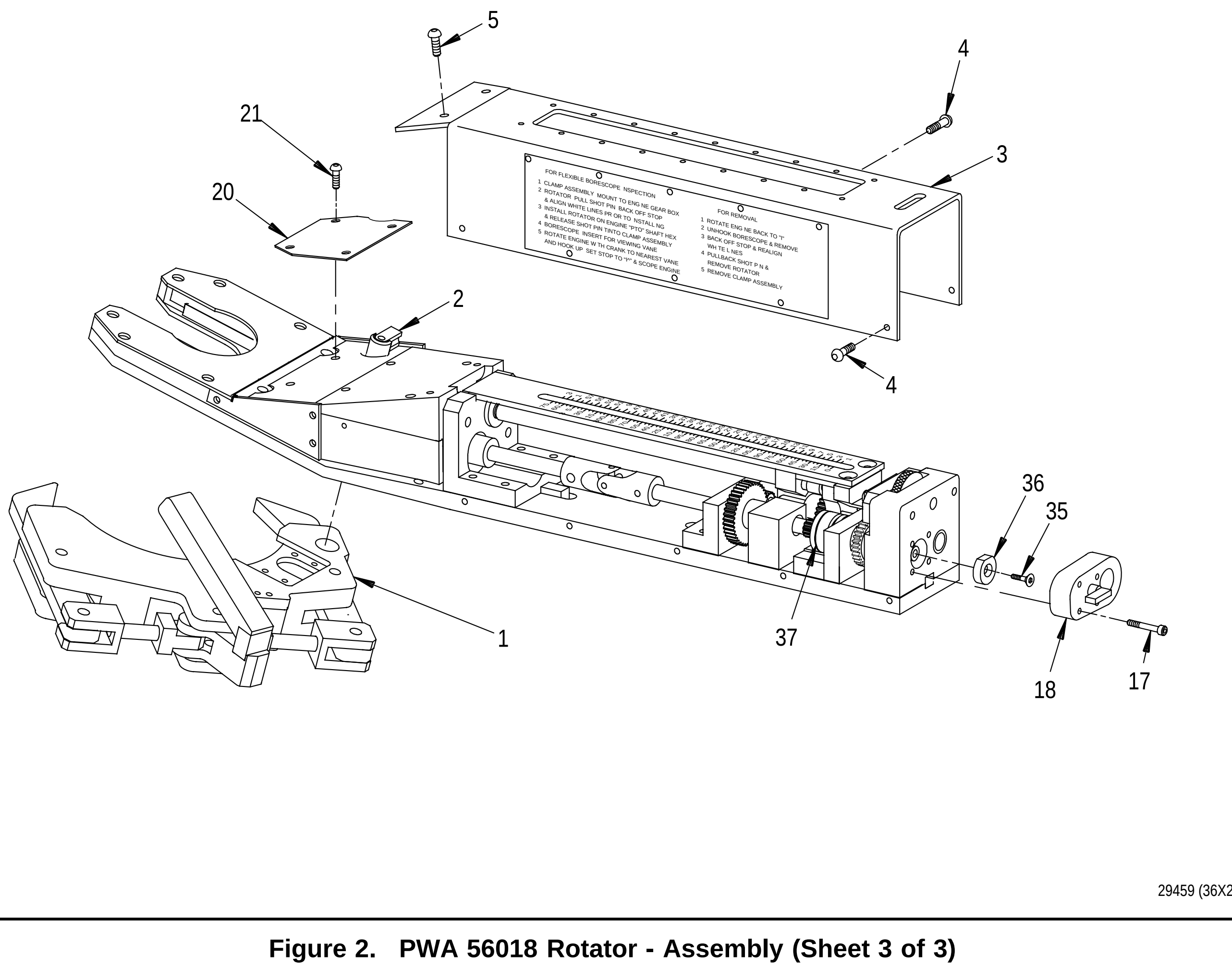


Figure 2. PWA 56018 Rotator - Assembly (Sheet 3 of 3)

WORK PACKAGE

TECHNICAL PROCEDURES

SILICONE RUBBER MOLD FIXTURES – CLEANING AND REPAIR

EFFECTIVITY: ENGINE MODELS F100-PW-100-229

LIST OF EFFECTIVE WP PAGES

Total Number of Pages in this WP is 6

Reference Material Required

Title	Number
Standard Maintenance Procedures	T.O. 2-1-111
Cleaning and Repair	SPOP 3

APPLICABLE TIME COMPLIANCE TECHNICAL ORDERS

None

CONSUMABLE MATERIALS

Nomenclature	Specification/Vendor Part Number
Adhesive	GE RTV 108
Grit, aluminum oxide (PMC 3043)	Number 90
Isopropyl alcohol	-
Primer, adhesive	DC-4094
Resin, flourocarbon	PWA 36038/DuPont 954-101

EXPENDABLE ITEMS

None

APPLICABLE SUPPORT EQUIPMENT

None

ILLUSTRATED SUPPORT EQUIPMENT

None

1. INTRODUCTION

a. This work package contains instructions for cleaning and repair of silicone rubber mold fixtures.

2. SILICONE RUBBER MOLD FIXTURES - CLEANING.

(See Table 1.)

a. Use suitable lifting devices to lift mold fixture as required.

NOTE

See table 1 to determine which mold fixtures have rubber packings and if packings are bonded.

b. If applicable, inspect packings for damage.

c. If applicable, remove packings. If packings are bonded, use isopropyl alcohol with stiff brush to clean packing groove.

d. Remove filler plugs.

e. If mold fixture is coated with preservative compounds, vapor degrease and air cool. Refer to T.O. 2-1-111, SPOP 3.

f. Clean mold fixture and plug details with isopropyl alcohol. Wipe holes normally occupied by plugs.

g. Bake mold fixture at 275° to 325°F (135° to 163°C) for 30 minutes.

h. Install filler plugs into mold fixtures from which they were removed.

NOTE

See table 1 to determine which mold fixtures require packings and if packings should be bonded.

i. If applicable, apply Dow Corning primer No. 4094, or equivalent followed by GE RTV No. 108 adhesive, or equivalent, to packing groove per manufacturer’s specifications.

j. If applicable, install packing into fixture packing groove.

Table 1. Rubber Mold Fixtures - Packing Replacement

Mold Fixture No. PWA	Use	Primer	Adhesive
To Be Determined From Tooling	To Be Determined	To Be Determined	To Be Determined

3. REPAIR OF RESIN COATING.
(See Table 2.)

a. Mask areas not to be grit blasted.

b. Remove unserviceable resin coating by grit blasting with No. 90 aluminum oxide grit.

c. Blow clean and dry with air.

d. Vapor degrease. Refer to T.O. 2-1-111, SPOP 3.

e. Cool to room temperature.

WARNING

Avoid prolonged contact of skin with bonding preventive resin. Avoid inhaling atomized material. Wash hands thoroughly before eating or smoking.

NOTE

Use test piece, coated concurrently with fixture, to determine coating thickness.

f. Apply PWA 36038 bonding preventive resin (Dupont 954-101 or equivalent), 0.0005 to 0.0010 inch thick by spraying. See table 2.

g. Air dry at room temperature for approximately 20 minutes.

h. Cure as follows:

(1) Aluminum parts: 335° to 365°F (169° to 185°C) for approximately 20 minutes.

(2) Steel parts: 385° to 415°F (196° to 212°C) for approximately 15 minutes.

i. Cool to room temperature.

j. Inspect for required thickness.

k. If required to achieve proper thickness, apply second coating of resin.

l. If second coating was applied, cure as follows:

(1) Aluminum parts: 385° to 415°F (196° to 212°C) for approximately 30 minutes.

(2) Steel parts: 385° to 415°F (224° to 240°C) for approximately 15 minutes.

m. Cool to room temperature.

Table 2. Rubber Mold Fixtures - Repair of Resin Coating

Mold Fixture No. PWA	Use	Location of Coating	Material of Detail
To Be Determined	Front compressor stator inlet shroud airsealing ring	To Be Determined	To Be Determined

WORK PACKAGE

TECHNICAL PROCEDURES

PWA55325 EXTRACTOR 37 DEGREE CONICAL SEALS

EFFECTIVITY: ENGINE MODELS F100-PW-229

LIST OF EFFECTIVE WP PAGES

Total Number of Pages in this WP is 6

PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.
1 - 5	12	6 Blank	12		

REFERENCE MATERIAL REQUIRED

None

APPLICABLE TIME COMPLIANCE TECHNICAL ORDERS

None

CONSUMABLE MATERIALS

Nomenclature	Specification/Vendor Part Number
Cloth, lint-free	-
Oil, preservative	MIL-L-6081, Grade 1010
Solvent, petroleum	P-D-680, Type II

EXPENDABLE ITEMS

None

APPLICABLE SUPPORT EQUIPMENT

None

ILLUSTRATED SUPPORT EQUIPMENT

None

1. INTRODUCTION

a. This work package contains instructions for maintenance of PWA 55325 extractor.

2. CLEANING

a. Use soft bristle brush to loosen dirt and remove foreign material.

b. Remove grease using P-D-680, petroleum solvent or equivalent. Wipe solvent from tool with clean, dry, lint-free cloth.

c. Dry with compressed air at 30 psig maximum discharge pressure.

3. INSPECTION.
(See Figure 1 and Table 1.)

a. Inspect PWA 55325 extractor per figure 1 and table 1.

4. REPAIR/REPLACEMENT.
(See figure 1.)

a. Disassembly. Not applicable.

b. Repair of details.

(1) Grind tip of extractor pry to obtain a maximum radius of 0.010 on tip. Material is AISI S5.

c. Assembly. Not applicable.

d. Apply MIL-L-6081, Grade 1010 corrosive preventive oil prior to storage.

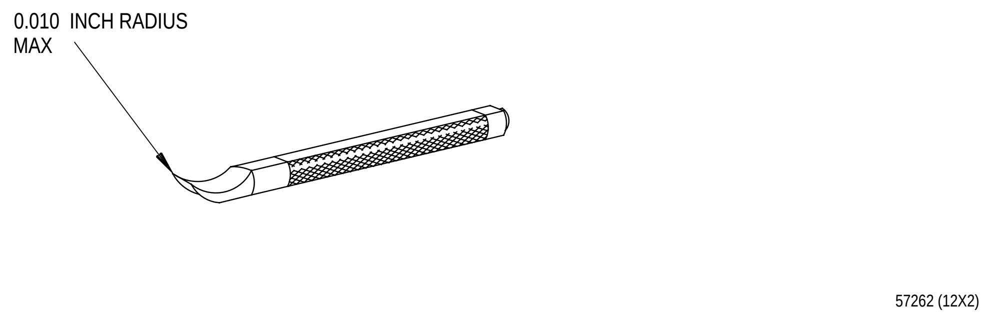


Figure 1. PWA 55325 Extractor

Table 1. Serviceable and Replacement Limits

Frequency	Inspection Area	Inspection Method and Condition	Maximum Serviceable Limits	Maximum Reparable Limits	Corrective Action
Prior to use	Entire tool	Visual for nicks,burrs, broken or missing details	None	None	Blend, use fine stone or fine file.
As required	Entire tool	Visual for coating	No bare spots allowed.	None	Refurbish block oxide per AMS 2485 or equivalent.
Prior to use	Tip of pry	Visual for radius	0.010 inch radius maximum	None	Grind per paragraph 4.

WORK PACKAGE

TECHNICAL PROCEDURES

PWA 57776 FIXTURE, MACHINE - SECOND STAGE FAN DRIVE (TURBINE DUCT SUPPORT AND SEGMENTS)

EFFECTIVITY: ENGINE MODELS F100-PW-229

LIST OF EFFECTIVE WP PAGES

Total Number of Pages in this WP is 6

PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.
1 - 5	28	6 Blank	28		

REFERENCE MATERIAL REQUIRED

None

APPLICABLE TIME COMPLIANCE TECHNICAL ORDERS

None

CONSUMABLE MATERIALS

Nomenclature	Specification/Vendor Part Number
Cloth, lint-free	-
Oil, hydraulic	Viscosity 300 SUS
Oil, preservative	MIL-L-6081, Grade 1010
Solvent, petroleum	P-D-680, Type I, II, or III

EXPENDABLE ITEMS

None

APPLICABLE SUPPORT EQUIPMENT

None

ILLUSTRATED SUPPORT EQUIPMENT

None

1. INTRODUCTION

a. This work package contains instructions for maintenance of PWA 57776 fixture.

2. CLEANING

a. Use soft bristle brush to loosen dirt and remove foreign material.

b. Clean all parts except at hydraulic chuck seals, using P-D-680 cleaning solvent or equivalent. Wipe solvent from fixture with clean, dry, lint-free cloth.

c. Dry with compressed air at 30 psig maximum discharge pressure.

3. INSPECTION.
(See Figure 1 and Table 1.)

a. Inspect PWA 57776 fixture per figure 1 and table 1.

b. Inspect fixture for oil leaks, cracked, bent or broken screws or any other signs of failure.

4. REPAIR/REPLACEMENT.
(See figure 1.)

CAUTION

To prevent failure of fixture, never expand tool unless a part or master is installed,

a. Replace piston assembly as follows:

(1) Insert appropriate size Allen type wrench (or hex wrench) into plunger and back out until removed.

(2) Using same Allen type wrench (or hex wrench), back out low profile set screw until removed.

CAUTION

To prevent damage to hydraulic chuck, use only hydraulic oil with a viscosity of 300 SUS at 100°F (37.8°C).

(3) Install grease fitting into fill port and slowly fill with oil until ball and two wiper items are pushed out.

(4) Discard all items and replace with new piston assembly kits (PWA 57776-1-2)

(5) Apply oil in open end of wiper item and install into plunger hole.

(6) Install second wiper item with flat end first into hole.

(7) Install ball set screw and plunger.

b. Refill hydraulic chuck as follows:

CAUTION

To prevent damage to hydraulic chuck, use only hydraulic oil with a viscosity of 300 SUS at 100°F (37.8°C).

(1) Remove refill screw and install grease fitting.

(2) Turn actuating screw until oil comes out of refill hole.

(3) Back out actuating screws and adjust screw (where provided) until flush with body or top of threads.

(4) Fill a hand operated grease gun with hydraulic oil with a viscosity of 300 SUS at 100°F (37.8°C).

(5) Attach hand operated grease (oil) gun to the fitting, and fill, usually a small amount of oil will suffice. You can feel thr pistons move back against the screw.

(6) Remove grease (oil) gun and fitting.

(7) Replace refill screw tightly.

c. Replace details as required.

d. Apply MIL-L-6081, Grade 1010 corrosion preventive oil prior to storage.

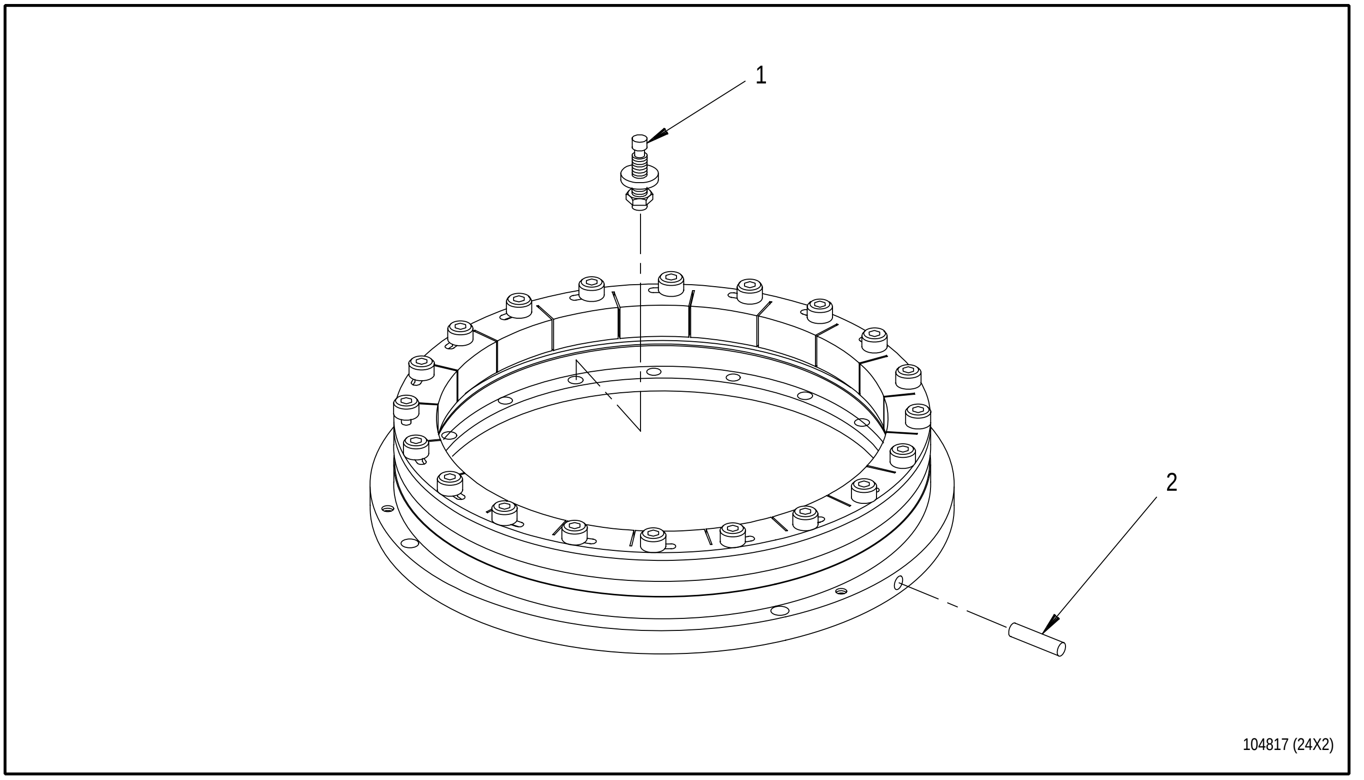


Figure 1. PWA 57776 Fixture

Table 1. Serviceable and Replacement Limits

Frequency	Inspection Area	Inspection Method and Condition	Maximum Serviceable Limits	Maximum Reparable Limits	Corrective Action
Prior to use	Entire tool	Visual for nicks,burrs, broken or missing details	None	None	Blend, use fine stone or fine file. Repair or replace details.
Prior to use	Detail 1-2 piston assembly	Leaks	Any amount of leakage	None	Replace with piston assembly kit
Prior to use	Detail 4 adjusting screw assembly	Visual for nicks, burrs, or thread damage	None	None	Blend or replace

WORK PACKAGE

LOCALLY MANUFACTURED SUPPORT EQUIPMENT

EFFECTIVITY: ENGINE MODEL F100-PW-229

LIST OF EFFECTIVE WP PAGES

Total Number of Pages in this WP is 32

PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.
1	28	13	17	19 - 20	17
2	8	14 Blank	17	21 - 22	20
3	28	15	15	23 - 24 Added	21
4 Blank	13	16	13	25 - 26	23
5	9	17 - 18	14	27 - 28 Added	25
6 - 12	8			29 - 32 Added	28

REFERENCE MATERIAL REQUIRED

None

APPLICABLE TIME COMPLIANCE TECHNICAL ORDERS

None

CONSUMABLE MATERIALS

None

EXPENDABLE ITEMS

None

APPLICABLE SUPPORT EQUIPMENT

None

ILLUSTRATED SUPPORT EQUIPMENT

None

1. INTRODUCTION.

a. Provided in this work package is information for creation of locally manufactured support equipment required for Depot Level maintenance.

2. LOCALLY MANUFACTURED SUPPORT EQUIPMENT.

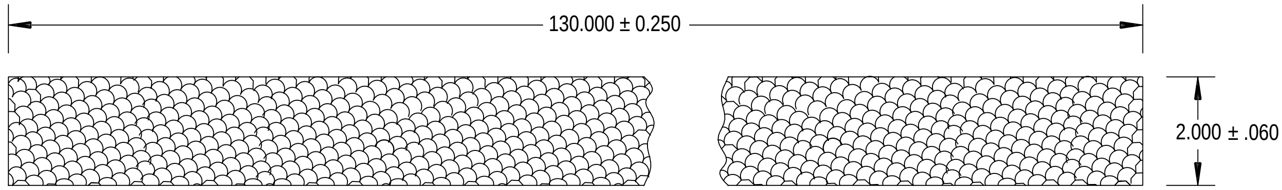
(See Figures 1 through 33 and Table 1.)

a. Create locally manufactured support equipment per table 1. and applicable figures.

Table 1. Locally Manufactured Support Equipment Figures

Part Number	Nomenclature	Figure Number
LM 1001	Spacer	15
LM 1003	Retainer, Augmentor Liner Seals	1
LM 1004	Plate Set, Anti-Ice	2
LM 1005	No. 4 Hose Assembly (1.ft.)	3
LM 1006	No. 4 Hose Assembly (5.ft.)	4
LM 1007	No. 6 Hose Assembly (1.ft.)	5
LM 1008	Pin, Rigging CIVV	6
LM 1009	Pry Bar, High Pressure Turbine (Brass)	7
LM 1010	Wedge	8
LM 1012	Adapter, DEEC, PS2	9
LM 1014	Combustion Chamber Liner Segment Retainer Installation Tool Set	10
LM 1016	Adapter, leak and Purge DEEC	11
LM 1017	Fixture, FTIT Thermocouple Alignment	12
LM 1020	Fan Inlet Case Assembly Alignment Pin	14
LM 1021	Clamp, 2nd Stage Turbine Duct Support	18
LM 1022	Spacer	27
LM 1023	Set, Pilot Drill	16
LM 1024	Set, Finishing Drill	17
LM 1025	Guide Tube	19
LM 1034	Guide Tube, Borescope Inspection	26
LM 1050	Adapter, Preservation-Fuel Nozzles, Fuel Manifolds, installed	31
LM 1053	Adapter, Installer, No. 5 Bearing Support Plug Packing	21
LM 1054	Clamp, No. 4 Bearing Internal Scavenge Tube Heat Shield	20
LM 1070	Braze Preform - No. 4 Bearing Scavenge Tube, Braze to Connector and to Case	28
LM 1071	Braze Preform - No. 4 Bearing Scavenge Tube, Braze to Connector and Ferrule	29
LM 1077	Drill Bushing, Fan Duct Stud	22
LM 1085	Drift	23
LM 1086	Pusher	24
LM 1089	Wrench, Turbine Exhaust Cone Retaining Bolt	25
LM 1090	Container - Dry Ice	32
LM 1097	Holder, Compression - No. 4 Bearing Front Carbon Seal	30
LM 1106	Pin, Alignment - Diffuser Case To HPC Rear Support	33

MATERIAL: FASTENER TAPE, HOOK AND LOOP, PER MIL–F–21840G (VELCRO)



NOTE

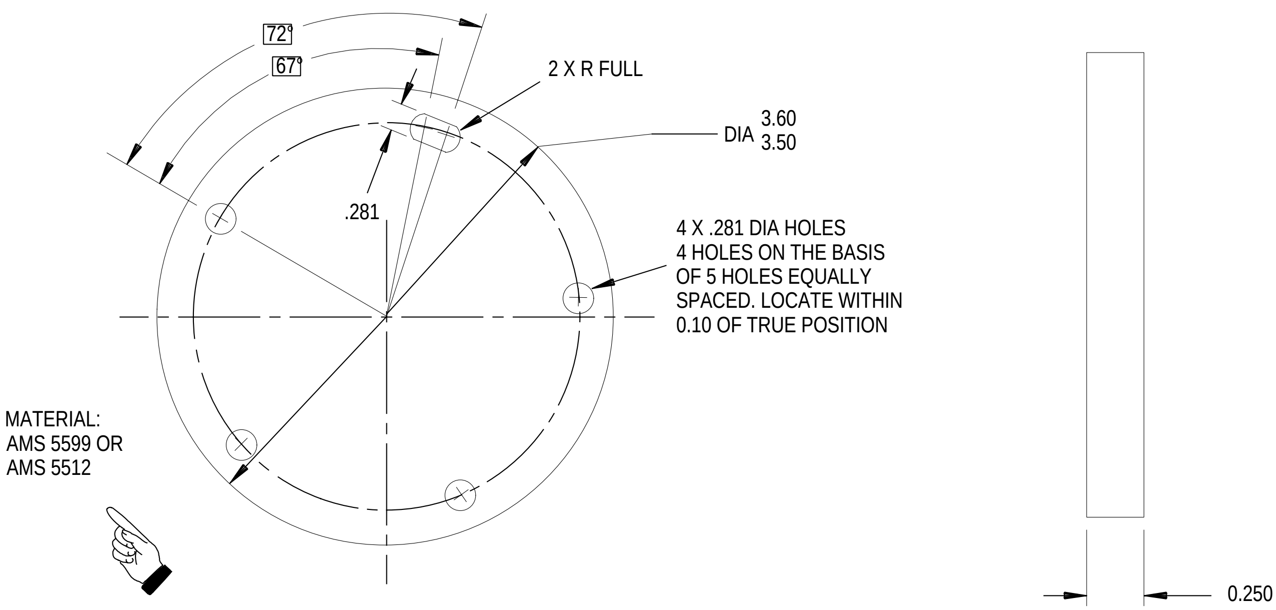
ALL DIMENSIONS IN INCHES

NO REV

LMBP1003 (12X2)

Figure 1. LM 1003 Liner Seals, Retainer Augmentor

VIBRO PEEN "LM 1004" AND LATEST REV WITH .12 INCH CHARACTERS



UNLESS OTHERWISE SPECIFIED	UNLESS OTHERWISE SPECIFIED
PROTECTIVE FINISH AS FURNISHED ACCEPTABLE ON PURCHASED ITEMS.	DIMENSIONS IN INCHES .0 ± 0.060
COAT WITH RUST PREVENTIVE COMPOUND FOR SHIPMENT AND STORAGE ONLY.	.00 ± 0.030 ANGLES ± 2°
BLACK OXIDE PER AMS 2485 ALL STEEL ITEMS SEPARATELY.	.000 ± .005
ANODIZE PER AMS 2470 ALL ALUMINUM ITEMS SEPARATELY.	BREAK SHARP EDGES .005 – 0.020 CORNERS MUST HAVE FILLETS 0.005 0.020 RAD. MACHINED SURFACES MAY HAVE A MAXIMUM ROUGHNESS OF 250 R.M.S. CASTING, FORGINGS & WELDMENTS MAY BE LEFT UNFINISHED.
WELD SYMBOLS PER AMERICAN WELDING SOCIETY (AWS) STANDARDS	
STRESS RELIEVE ALL WELDMENTS BEFORE FINISH MACHINING	

LMBP1004 (36X2)

Figure 2. LM 1004 Plate Set, Anti-Ice

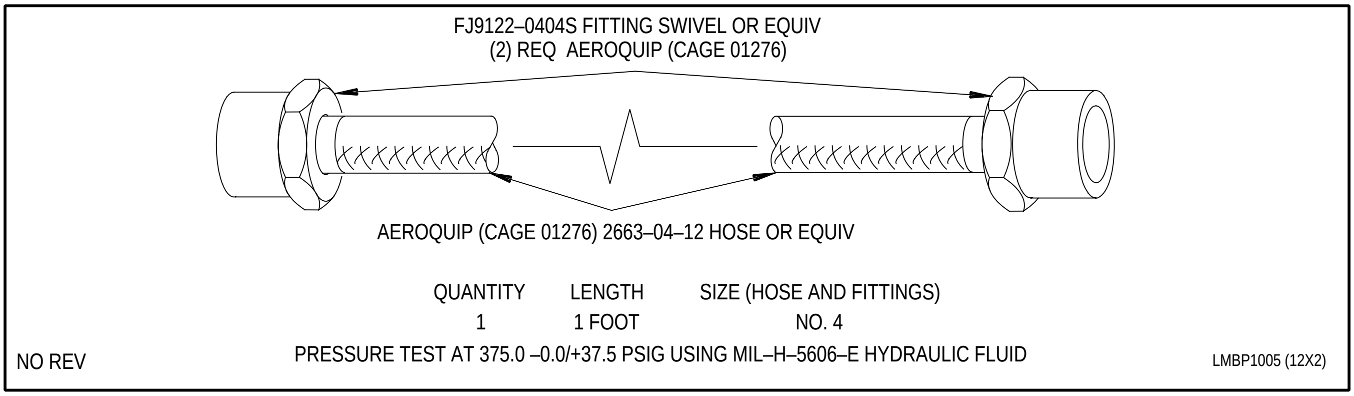


Figure 3. LM 1005 No. 4 Hose Assembly, (1.ft.)

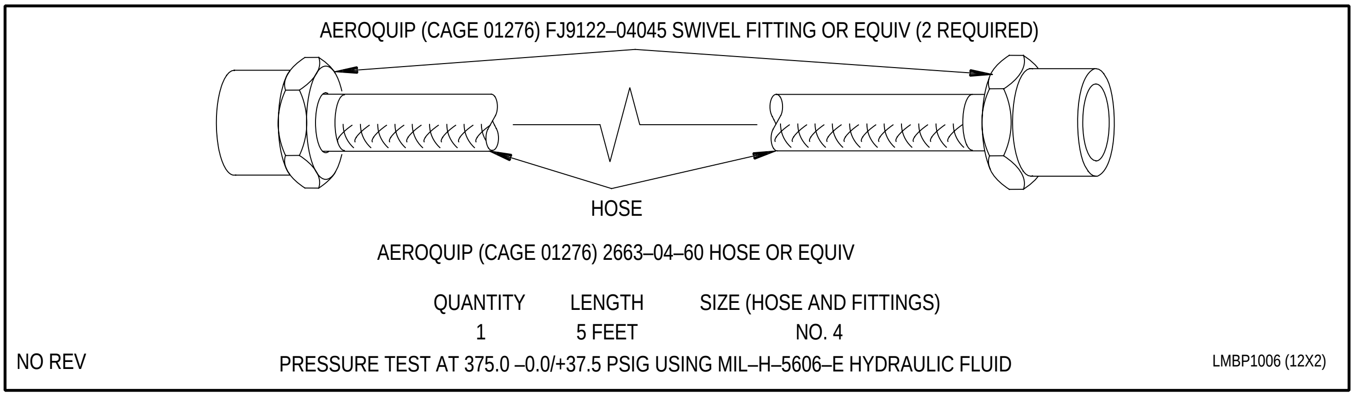


Figure 4. LM 1006 No. 4 Hose Assembly, (5.ft.)

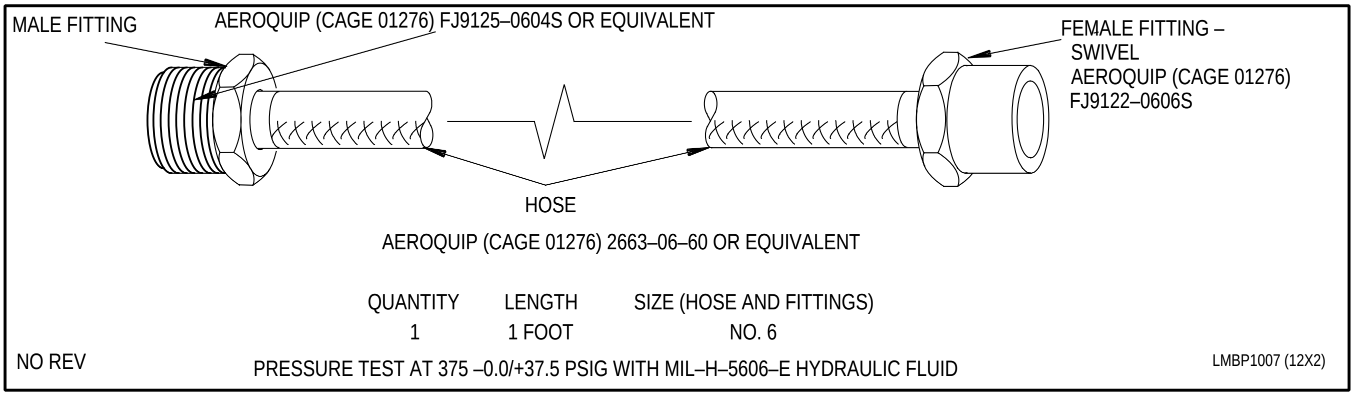
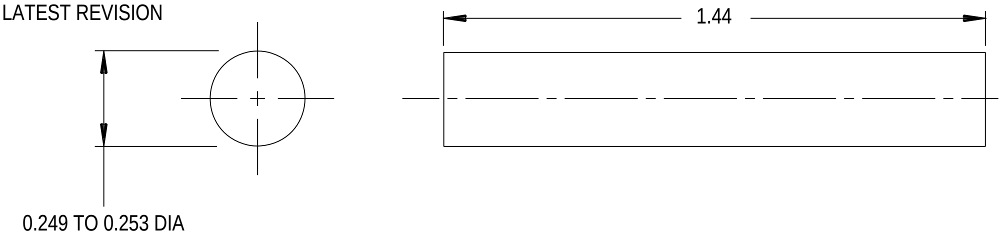


Figure 5. LM 1007 No. 6 Hose Assembly, (5.ft.)

NOTE

VIBRO PEEN "LM 1008" AND LATEST REVISION USING 0.12 HARACTERS



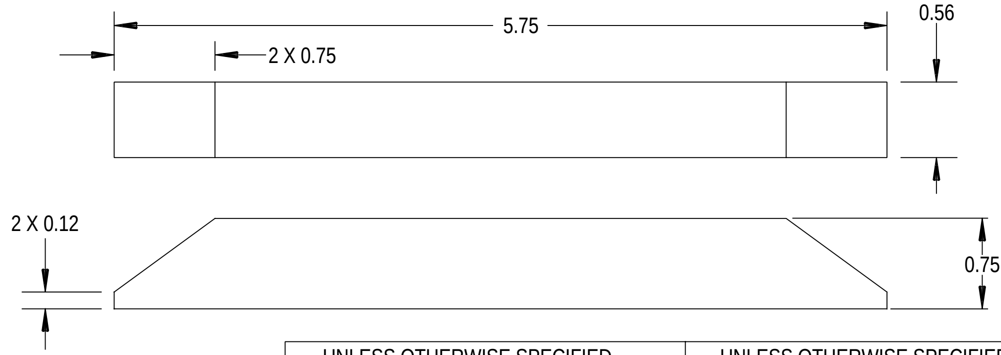
NOTE

MATERIAL: AISI 01 HARDEN TO ROCKWEL "C" 59–63

UNLESS OTHERWISE SPECIFIED	UNLESS OTHERWISE SPECIFIED
PROTECTIVE FINISH AS FURNISHED ACCEPTABLE ON PURCHASED ITEMS.	DIMENSIONS IN INCHES .0 ± 0.060 .00 ± 0.030 ANGLES ± 2° .000 ± .005
COAT WITH RUST PREVENTIVE COMPOUND FOR SHIPMENT AND STORAGE ONLY.	
BLACK OXIDE PER AMS 2485 ALL STEEL ITEMS SEPARATELY.	
ANODIZE PER AMS 2470 ALL ALUMINUM ITEMS SEPARATELY.	BREAK SHARP EDGES .005 – 0.020 CORNERS MUST HAVE FILLETS 0.005 0.020 RAD. MACHINED SURFACES MAY HAVE A MAXIMUM ROUGHNESS OF 250 R.M.S. CASTING, FORGINGS & WELDMENTS MAY BE LEFT UNFINISHED.
WELD SYMBOLS PER AMERICAN WELDING SOCIETY (AWS) STANDARDS	
STRESS RELIEVE ALL WELDMENTS BEFORE FINISH MACHINING	

NO REV LMBP1008 (24X2)

Figure 6. LM 1008 Pin, Rigging CIVV



NOTE

- MATERIAL: BRASS
- VIBRO PEEN "LM 1004" AND LATEST REVISION WITH 0.12 CHARACTERS

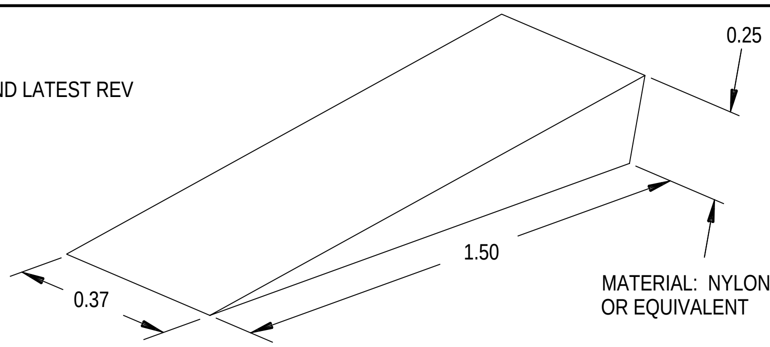
UNLESS OTHERWISE SPECIFIED	UNLESS OTHERWISE SPECIFIED
PROTECTIVE FINISH AS FURNISHED ACCEPTABLE ON PURCHASED ITEMS.	DIMENSIONS IN INCHES .0 ± 0.060
COAT WITH RUST PREVENTIVE COMPOUND FOR SHIPMENT AND STORAGE ONLY.	.00 ± 0.030 ANGLES ± 2°
BLACK OXIDE PER AMS 2485 ALL STEEL ITEMS SEPARATELY.	.000 ± .005
ANODIZE PER AMS 2470 ALL ALUMINUM ITEMS SEPARATELY.	BREAK SHARP EDGES .005 – 0.020 CORNERS MUST HAVE FILLETS 0.005 0.020 RAD.
WELD SYMBOLS PER AMERICAN WELDING SOCIETY (AWS) STANDARDS	MACHINED SURFACES MAY HAVE A MAXIMUM ROUGHNESS OF 250 R.M.S.
STRESS RELIEVE ALL WELDMENTS BEFORE FINISH MACHINING	CASTING, FORGINGS & WELDMENTS MAY BE LEFT UNFINISHED.

NO REV LMBP1009 (24X2)

Figure 7. LM 1009 Pry Bar, High Pressure Turbine (Brass)

NOTE

VIBRO PEEN "LM 1010" AND LATEST REV WITH 0.12 CHARACTERS

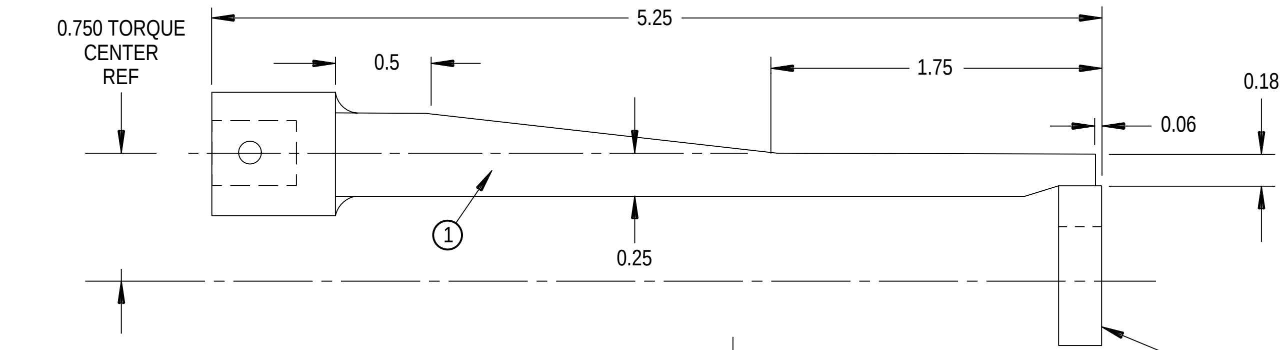


MATERIAL: NYLON–66 PER FED.SPEC.L–P–410 OR EQUIVALENT

UNLESS OTHERWISE SPECIFIED	UNLESS OTHERWISE SPECIFIED
PROTECTIVE FINISH AS FURNISHED ACCEPTABLE ON PURCHASED ITEMS.	DIMENSIONS IN INCHES .0 ± 0.060
COAT WITH RUST PREVENTIVE COMPOUND FOR SHIPMENT AND STORAGE ONLY.	.00 ± 0.030 ANGLES ± 2°
BLACK OXIDE PER AMS 2485 ALL STEEL ITEMS SEPARATELY.	.000 ± .005
ANODIZE PER AMS 2470 ALL ALUMINUM ITEMS SEPARATELY.	BREAK SHARP EDGES .005 – 0.020 CORNERS MUST HAVE FILLETS 0.005 0.020 RAD.
WELD SYMBOLS PER AMERICAN WELDING SOCIETY (AWS) STANDARDS	MACHINED SURFACES MAY HAVE A MAXIMUM ROUGHNESS OF 250 R.M.S.
STRESS RELIEVE ALL WELDMENTS BEFORE FINISH MACHINING	CASTING, FORGINGS & WELDMENTS MAY BE LEFT UNFINISHED.

NO REV LMBP1010 (24X2)

Figure 8. LM 1010 Wedge



LOCALLY MANUFACTURE TOOL AS FOLLOWS:

A. MACHINE SNAP ON EXTENSION BAR (1), PN GFX6 , NSN 5120 – 01 – 288 – 2682 OR NSN 5120 – 01 – 335 – 1067, OR EQUIVALENT

B. MACHINE 9/16 SNAP ON CROWFOOT (2), PN FCO18, NSN 5120 – 01 – 131 – 4465 OR NSN 5120 – 01 – 333 – 1152, OR EQUIVALENT

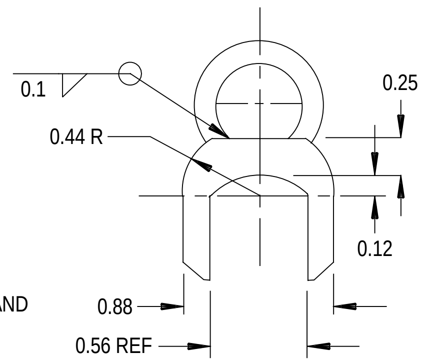
C. REMOVE CHROME PLATE FROM CROWFOOT (2) AND EXTENSION (1) SHANK, IF REQUIRED

D. WELD CROWFOOT (2) TO EXTENSION BAR (1) USING 300 SERIES STAINLESS STEEL FILLER METAL

E. STRESS RELIEVE AT 900° F FOR 2 HOURS

F. WELD PER AWS D1.1/D1.2

G. VIBRO PEEN "LM 1012" AND LATEST REVISION LETTER WITH 0.12 HIGH CHARACTERS

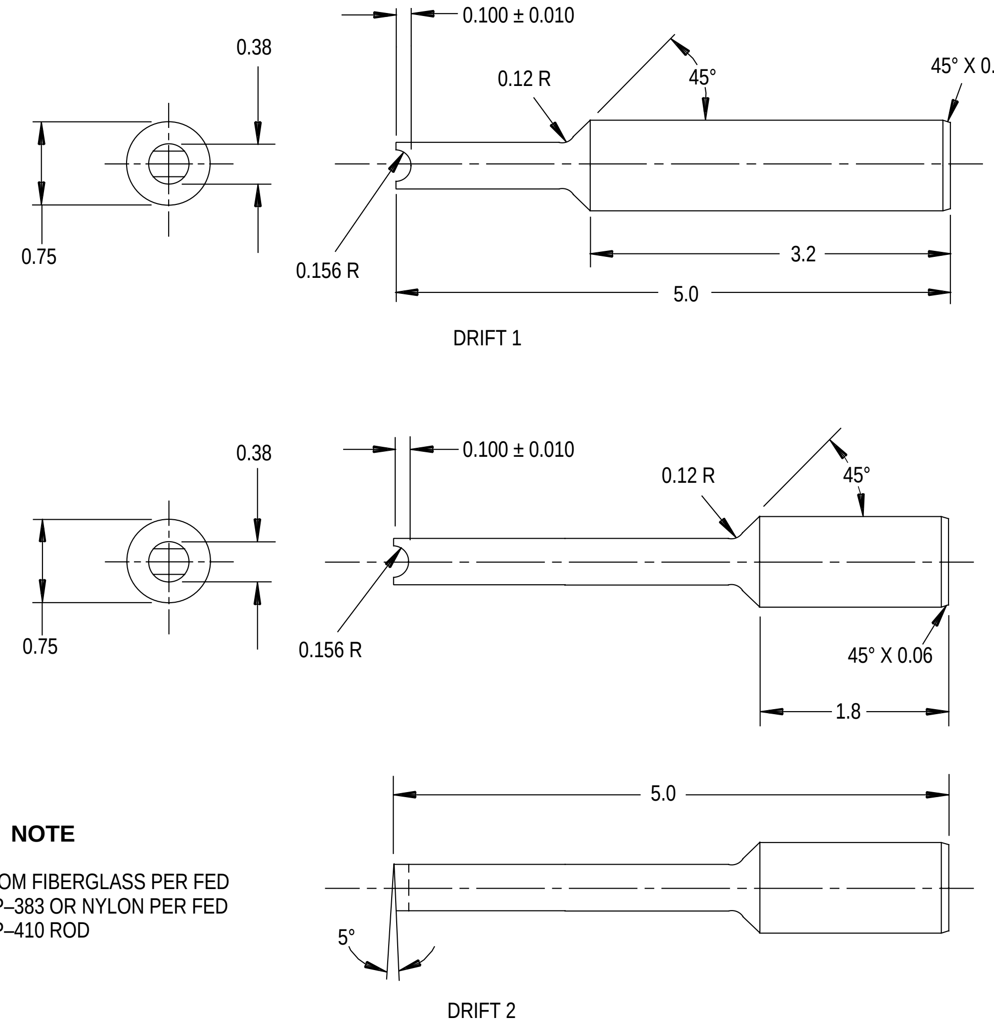


UNLESS OTHERWISE SPECIFIED	UNLESS OTHERWISE SPECIFIED
PROTECTIVE FINISH AS FURNISHED ACCEPTABLE ON PURCHASED ITEMS.	DIMENSIONS IN INCHES .0 ± 0.060
COAT WITH RUST PREVENTIVE COMPOUND FOR SHIPMENT AND STORAGE ONLY.	.00 ± 0.030 ANGLES ± 2°
BLACK OXIDE PER AMS 2485 ALL STEEL ITEMS SEPARATELY.	.000 ± .005
ANODIZE PER AMS 2470 ALL ALUMINUM ITEMS SEPARATELY.	BREAK SHARP EDGES .005 – 0.020 CORNERS MUST HAVE FILLETS 0.005 0.020 RAD. MACHINED SURFACES MAY HAVE A MAXIMUM ROUGHNESS OF 250 R.M.S. CASTING, FORGINGS & WELDMENTS MAY BE LEFT UNFINISHED.
WELD SYMBOLS PER AMERICAN WELDING SOCIETY (AWS) STANDARDS	
STRESS RELIEVE ALL WELDMENTS BEFORE FINISH MACHINING	

NO REV

LMBP1012 (36X2)

Figure 9. LM 1012 Adapter, DEEC, Ps2



NOTE

MAKE FROM FIBERGLASS PER FED SPEC L–P–383 OR NYLON PER FED SPEC L–P–410 ROD

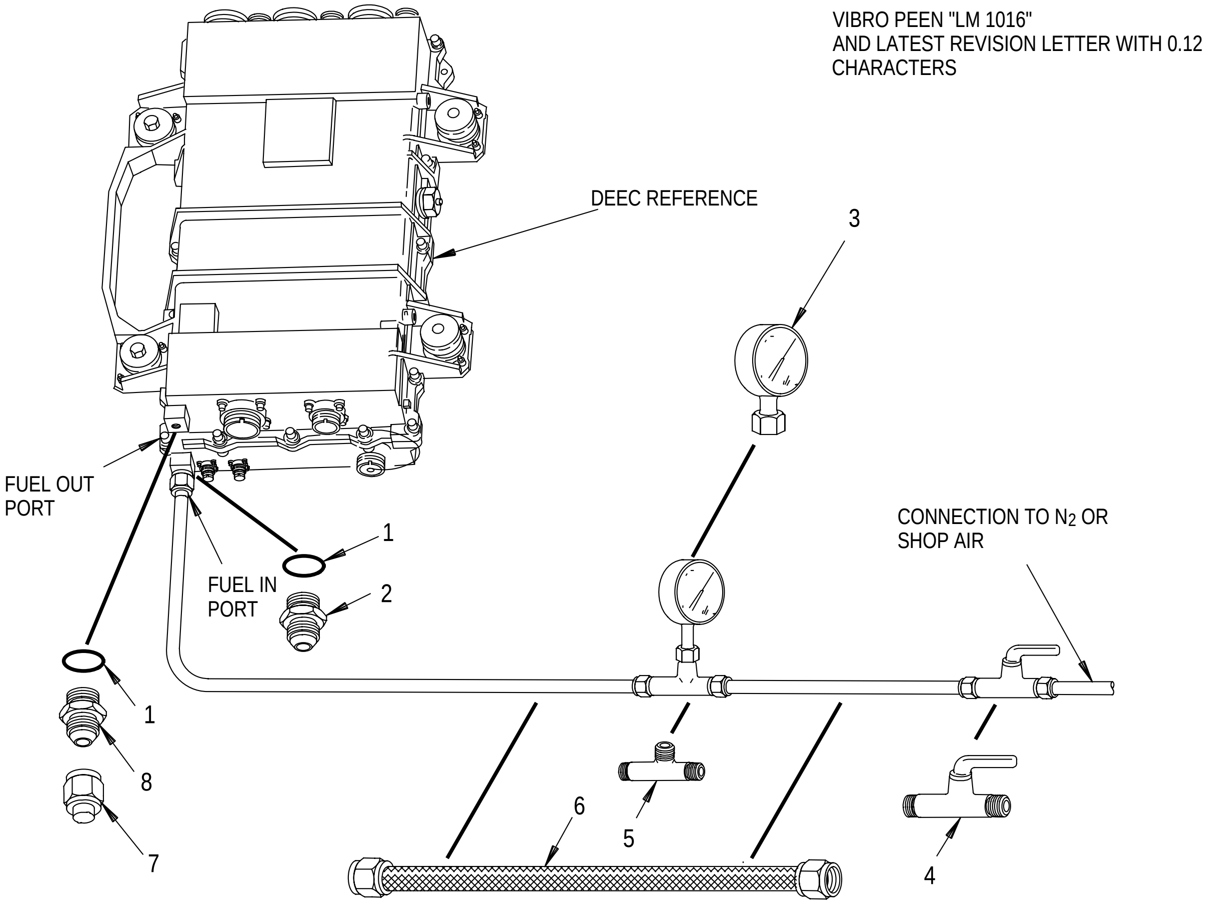
UNLESS OTHERWISE SPECIFIED	UNLESS OTHERWISE SPECIFIED
PROTECTIVE FINISH AS FURNISHED ACCEPTABLE ON PURCHASED ITEMS.	DIMENSIONS IN INCHES .0 ± 0.060
COAT WITH RUST PREVENTIVE COMPOUND FOR SHIPMENT AND STORAGE ONLY.	.00 ± 0.030 ANGLES ± 2°
BLACK OXIDE PER AMS 2485 ALL STEEL ITEMS SEPARATELY.	.000 ± .005
ANODIZE PER AMS 2470 ALL ALUMINUM ITEMS SEPARATELY.	BREAK SHARP EDGES .005 – 0.020 CORNERS MUST HAVE FILLETS 0.005 0.020 RAD.
WELD SYMBOLS PER AMERICAN WELDING SOCIETY (AWS) STANDARDS	MACHINED SURFACES MAY HAVE A MAXIMUM ROUGHNESS OF 250 R.M.S.
STRESS RELIEVE ALL WELDMENTS BEFORE FINISH MACHINING	CASTING, FORGINGS & WELDMENTS MAY BE LEFT UNFINISHED.

NO REV

LMBP1014 (48X2)

Figure 10. LM 1014 Combustion Chamber Liner Segment Retainer Installation Tool Set

NOTE
VIBRO PEEN "LM 1016"
AND LATEST REVISION LETTER WITH 0.12
CHARACTERS

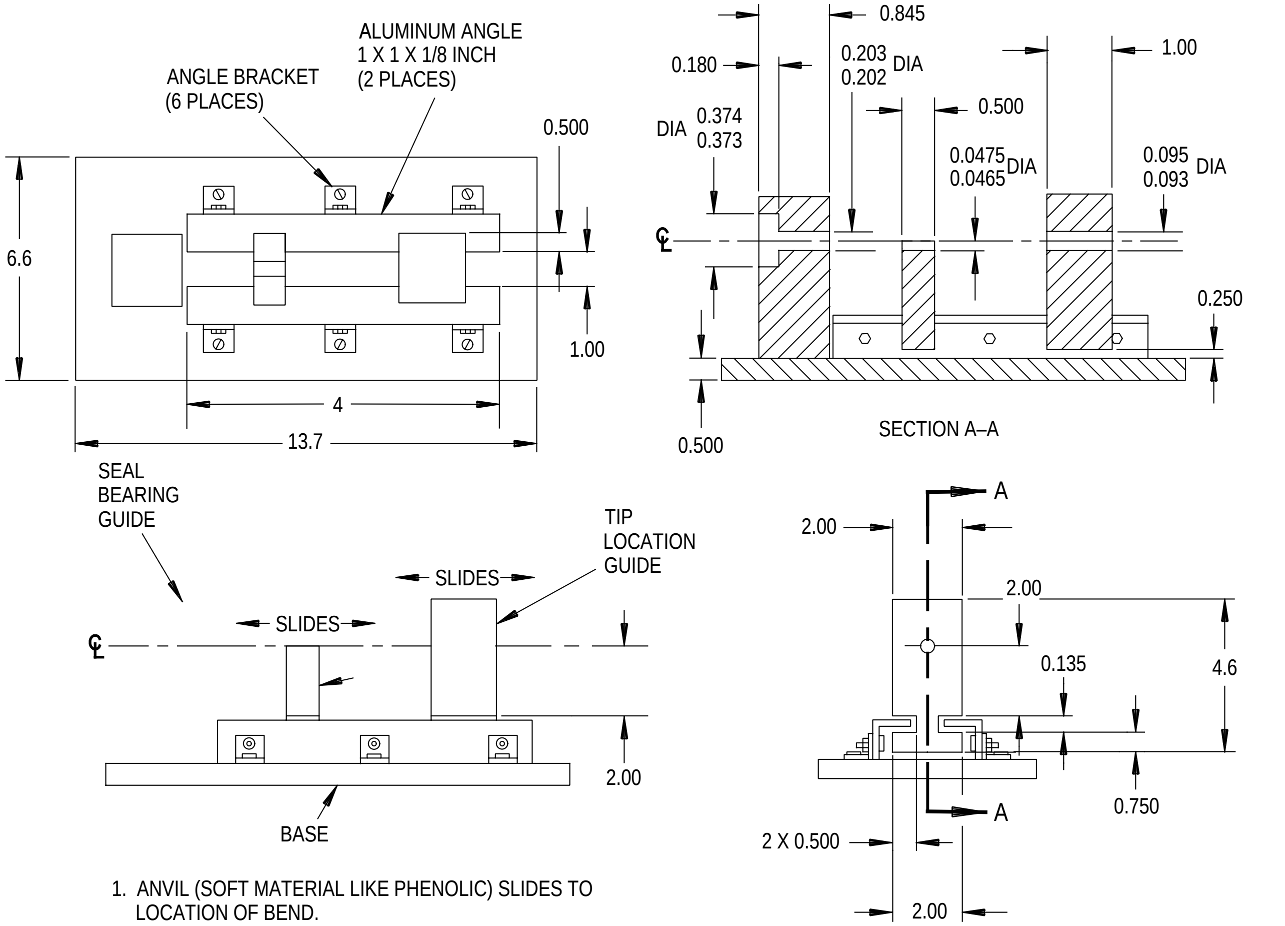


1. PN MS9966–06 PREFORMED PACKING, 2 REQUIRED
2. PN ST2091–041 ADAPTER
3. PN 25544–24B51 (ROYLYN 3D CAGE 86831) OR PN 45–1009–A–02L (DRESSER IND ASHCROFT CAGE 38056) GAGE, 0 TO 100 PSI (1 PSI INCREMENTS)
4. PN 7115F4S (HOKE CAGE 28968) 1/4 INCH SHUTOFF VALVE
5. PN MS51511–4 TEE
6. PN MS8000 HOSE, SIZE E, STYLE A (F/M,SWIVEL ENDS), 2 REQUIRED
7. PN MS9314–06 CAP
8. PN ST2091–04 ADAPTER

NO REV

LMBP1016 (36X2)

Figure 11. LM 1016 Adapter, Leak and Purge DEEC



1. ANVIL (SOFT MATERIAL LIKE PHENOLIC) SLIDES TO LOCATION OF BEND.
2. TIP LOCATION GUIDE SLIDES IN BASE TO CLEAR TIP WHILE STRAIGHTENING PROBE SHEATH.
3. TOP OF ANVIL IS GROOVED WITH PROBE SHEATH RADIUS, 0.0465 TO 0.0475.

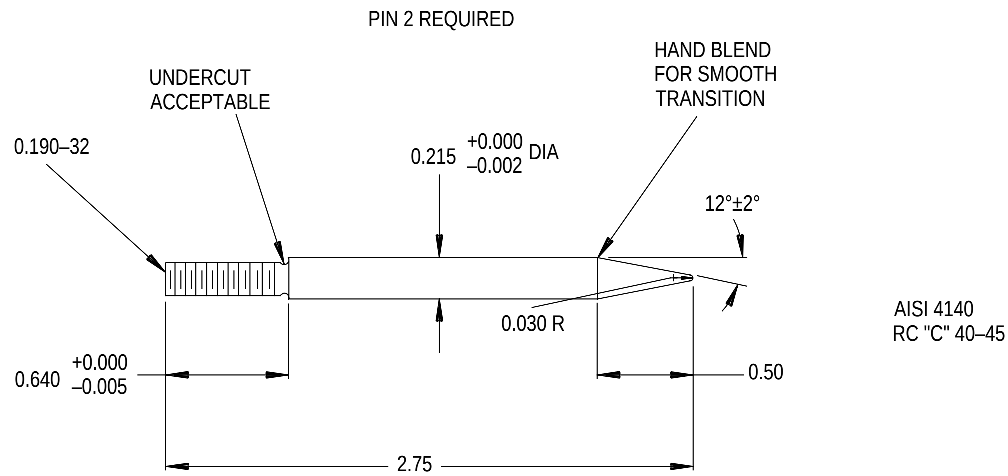
UNLESS OTHERWISE SPECIFIED	UNLESS OTHERWISE SPECIFIED
PROTECTIVE FINISH AS FURNISHED ACCEPTABLE ON PURCHASED ITEMS.	DIMENSIONS IN INCHES .0 ± 0.060
COAT WITH RUST PREVENTIVE COMPOUND FOR SHIPMENT AND STORAGE ONLY.	.00 ± 0.030 ANGLES ± 2°
BLACK OXIDE PER AMS 2485 ALL STEEL ITEMS SEPARATELY.	.000 ± .005
ANODIZE PER AMS 2470 ALL ALUMINUM ITEMS SEPARATELY.	BREAK SHARP EDGES .005 – 0.020 CORNERS MUST HAVE FILLETS 0.005 0.020 RAD.
WELD SYMBOLS PER AMERICAN WELDING SOCIETY (AWS) STANDARDS	MACHINED SURFACES MAY HAVE A MAXIMUM ROUGHNESS OF 250 R.M.S.
STRESS RELIEVE ALL WELDMENTS BEFORE FINISH MACHINING	CASTING, FORGINGS & WELDMENTS MAY BE LEFT UNFINISHED.

NO REV

LMBP1017 (48X2)

Figure 12. LM 1017 Fixture, FTIT Thermocouple Alignment

Figure 13. Deleted. Deleted.

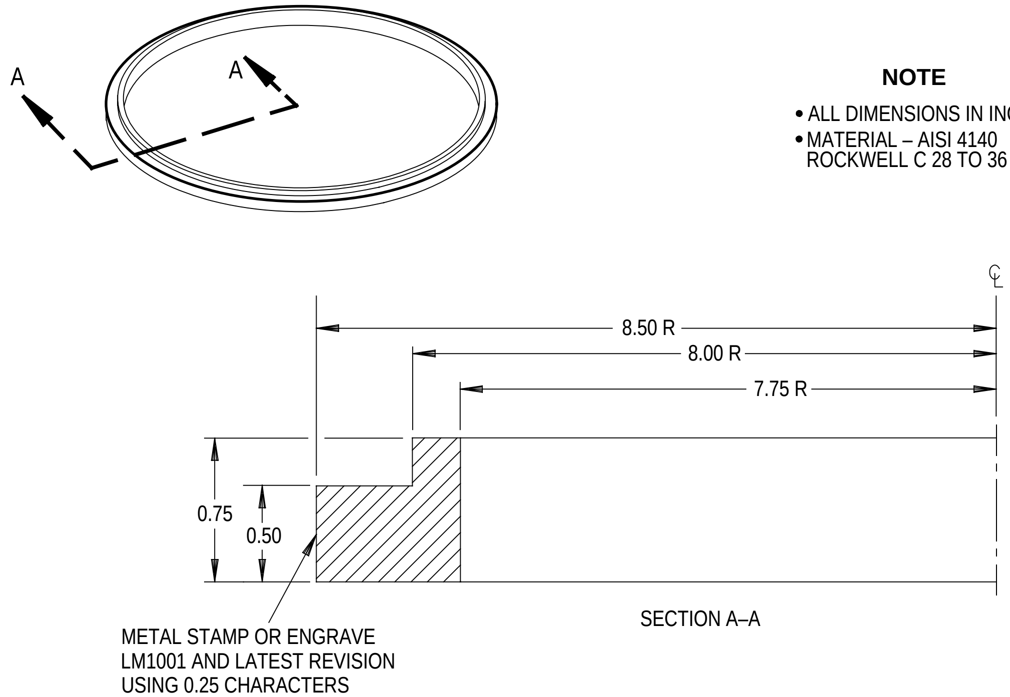


0.190–32 NUT 2 REQUIRED
MS 35650–304 NUT OR
MODIFY 4005199 BY REMOVING
LOCKING FEATURE.

UNLESS OTHERWISE SPECIFIED	UNLESS OTHERWISE SPECIFIED
PROTECTIVE FINISH AS FURNISHED ACCEPTABLE ON PURCHASED ITEMS.	DIMENSIONS IN INCHES .0 ± 0.060
COAT WITH RUST PREVENTIVE COMPOUND FOR SHIPMENT AND STORAGE ONLY.	.00 ± 0.030 ANGLES ± 2°
BLACK OXIDE PER AMS 2485 ALL STEEL ITEMS SEPARATELY.	.000 ± .005
ANODIZE PER AMS 2470 ALL ALUMINUM ITEMS SEPARATELY.	BREAK SHARP EDGES .005 – 0.020 CORNERS MUST HAVE FILLETS 0.005 0.020 RAD.
WELD SYMBOLS PER AMERICAN WELDING SOCIETY (AWS) STANDARDS	MACHINED SURFACES MAY HAVE A MAXIMUM ROUGHNESS OF 250 R.M.S.
STRESS RELIEVE ALL WELDMENTS BEFORE FINISH MACHINING	CASTING, FORGINGS & WELDMENTS MAY BE LEFT UNFINISHED.

LMBP1020 (36X2)

Figure 14. LM 1020 Alignment Pin, Fan Inlet Case Assembly



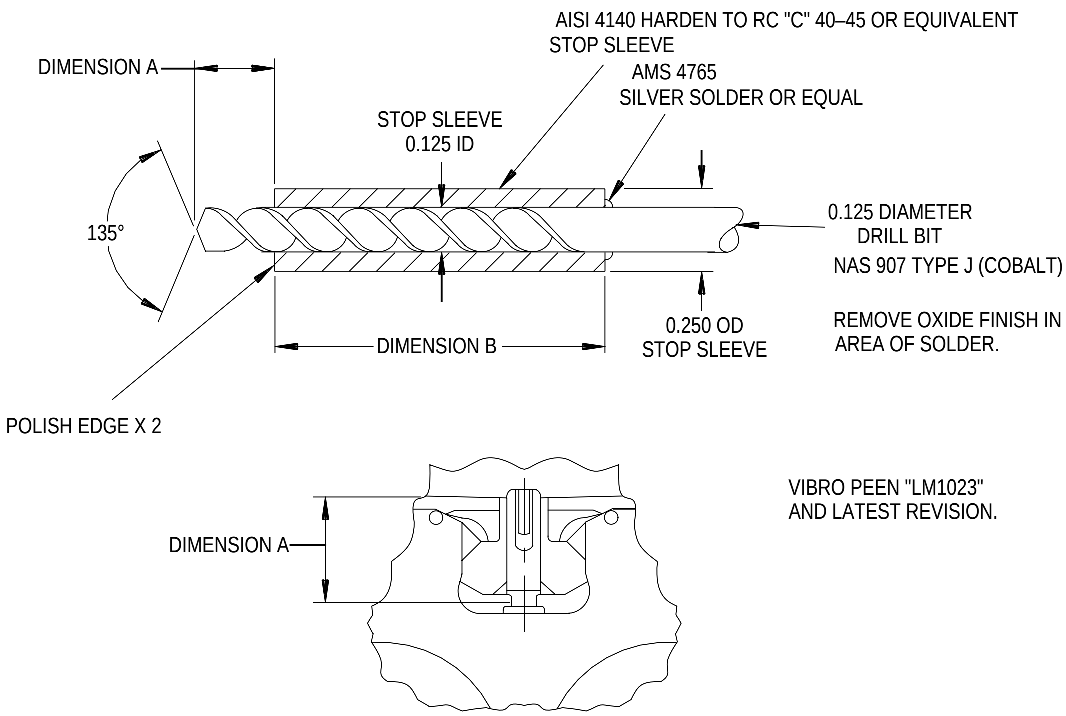
NOTE

- ALL DIMENSIONS IN INCHES
- MATERIAL – AISI 4140
  ROCKWELL C 28 TO 36

UNLESS OTHERWISE SPECIFIED	UNLESS OTHERWISE SPECIFIED
PROTECTIVE FINISH AS FURNISHED ACCEPTABLE ON PURCHASED ITEMS.	DIMENSIONS IN INCHES .0 ± 0.060
COAT WITH RUST PREVENTIVE COMPOUND FOR SHIPMENT AND STORAGE ONLY.	.00 ± 0.030 ANGLES ± 2°
BLACK OXIDE ENTIRE TOOL PER AMS 2485	.000 ± .005
WELD SYMBOLS PER AMERICAN WELDING SOCIETY (AWS) STANDARDS	BREAK SHARP EDGES .005 – 0.020 CORNERS MUST HAVE FILLETS 0.005 0.020 RAD. MACHINED SURFACES MAY HAVE A MAXIMUM ROUGHNESS OF 250 R.M.S. CASTING, FORGINGS & WELDMENTS MAY BE LEFT UNFINISHED.
STRESS RELIEVE ALL WELDMENTS BEFORE FINISH MACHINING	

LMBP1001 (36X2)

Figure 15. LM 1001 Spacer



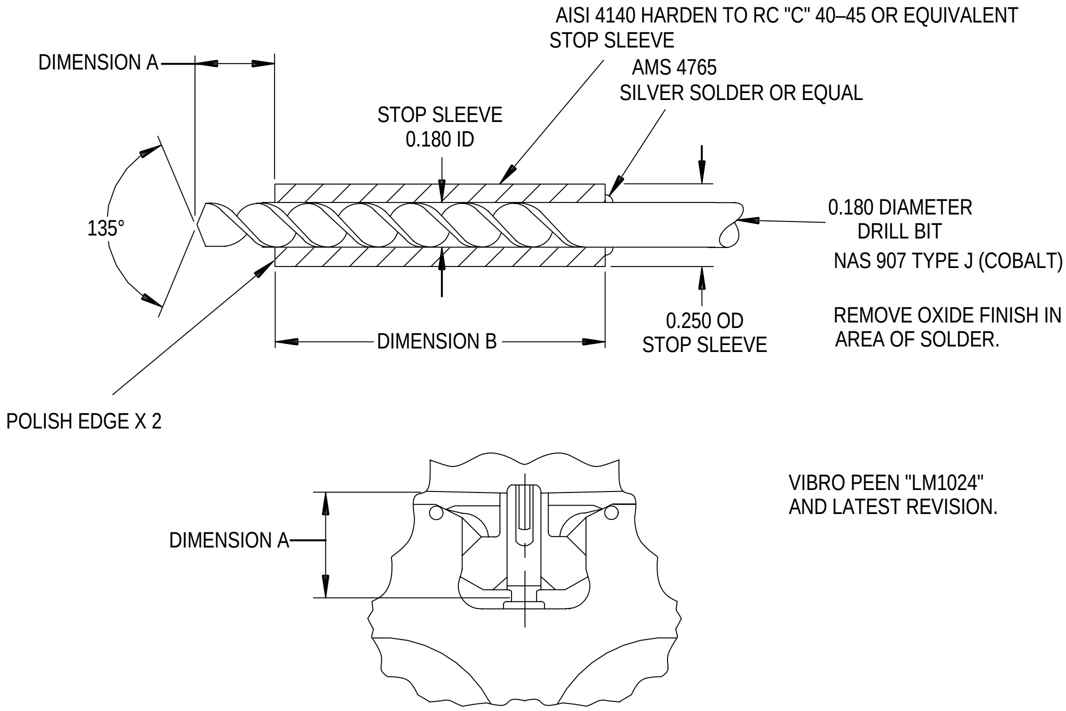
STAGE	DRILL DEPTH DIMENSION A	STOP SLEEVE LENGTH DIMENSION B
8TH	0.450	2.250
9TH	0.380	2.250
10TH	0.330	2.250
11TH	0.310	2.250
12TH	0.325	2.250
13TH	0.280	2.250

UNLESS OTHERWISE SPECIFIED	UNLESS OTHERWISE SPECIFIED
PROTECTIVE FINISH AS FURNISHED ACCEPTABLE ON PURCHASED ITEMS.	DIMENSIONS IN INCHES .0 ± 0.060
COAT WITH RUST PREVENTIVE COMPOUND FOR SHIPMENT AND STORAGE ONLY.	.00 ± 0.030 ANGLES ± 2°
BLACK OXIDE PER AMS 2485 ALL STEEL ITEMS SEPARATELY.	.000 ± .005
ANODIZE PER AMS 2470 ALL ALUMINUM ITEMS SEPARATELY.	BREAK SHARP EDGES .005 – 0.020 CORNERS MUST HAVE FILLETS 0.005 0.020 RAD. MACHINED SURFACES MAY HAVE A MAXIMUM ROUGHNESS OF 250 R.M.S. CASTING, FORGINGS & WELDMENTS MAY BE LEFT UNFINISHED.
WELD SYMBOLS PER AMERICAN WELDING SOCIETY (AWS) STANDARDS	
STRESS RELIEVE ALL WELDMENTS BEFORE FINISH MACHINING	

NO REV

LMBP1023 (48X2)

Figure 16. LM 1023 Set, Pilot Drill



STAGE	DRILL DEPTH DIMENSION A	STOP SLEEVE LENGTH DIMENSION B
8TH	0.495	2.250
9TH	0.425	2.250
10TH	0.365	2.250
11TH	0.365	2.250
12TH	0.355	2.250
13TH	0.310	2.250

UNLESS OTHERWISE SPECIFIED	UNLESS OTHERWISE SPECIFIED
PROTECTIVE FINISH AS FURNISHED ACCEPTABLE ON PURCHASED ITEMS.	DIMENSIONS IN INCHES .0 ± 0.060
COAT WITH RUST PREVENTIVE COMPOUND FOR SHIPMENT AND STORAGE ONLY.	.00 ± 0.030 ANGLES ± 2°
BLACK OXIDE PER AMS 2485 ALL STEEL ITEMS SEPARATELY.	.000 ± .005
ANODIZE PER AMS 2470 ALL ALUMINUM ITEMS SEPARATELY.	BREAK SHARP EDGES .005 – 0.020 CORNERS MUST HAVE FILLETS 0.005 0.020 RAD.
WELD SYMBOLS PER AMERICAN WELDING SOCIETY (AWS) STANDARDS	MACHINED SURFACES MAY HAVE A MAXIMUM ROUGHNESS OF 250 R.M.S.
STRESS RELIEVE ALL WELDMENTS BEFORE FINISH MACHINING	CASTING, FORGINGS & WELDMENTS MAY BE LEFT UNFINISHED.

NO REV

LMBP1024 (48X2)

Figure 17. LM 1024 Set, Finishing Drill

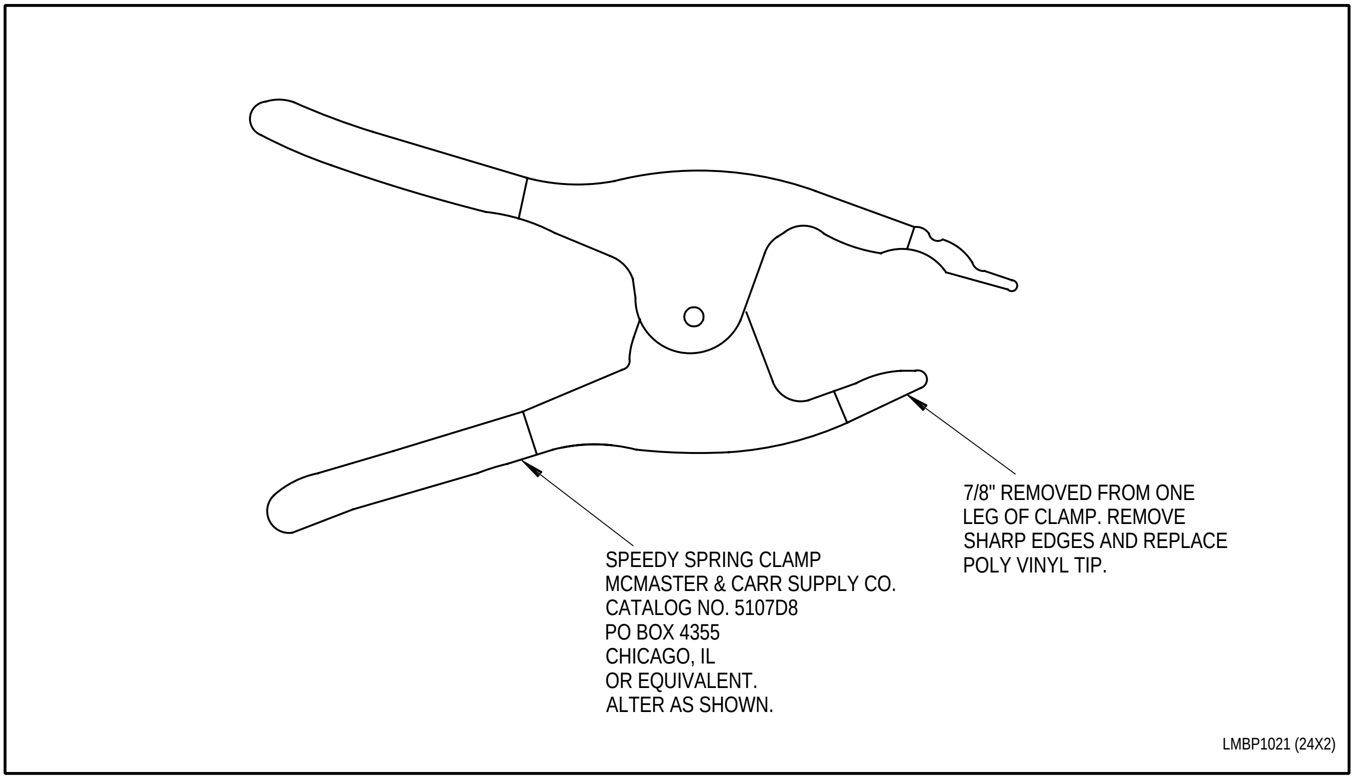


Figure 18. LM 1021 Clamp, Second Stage Turbine Duct Support

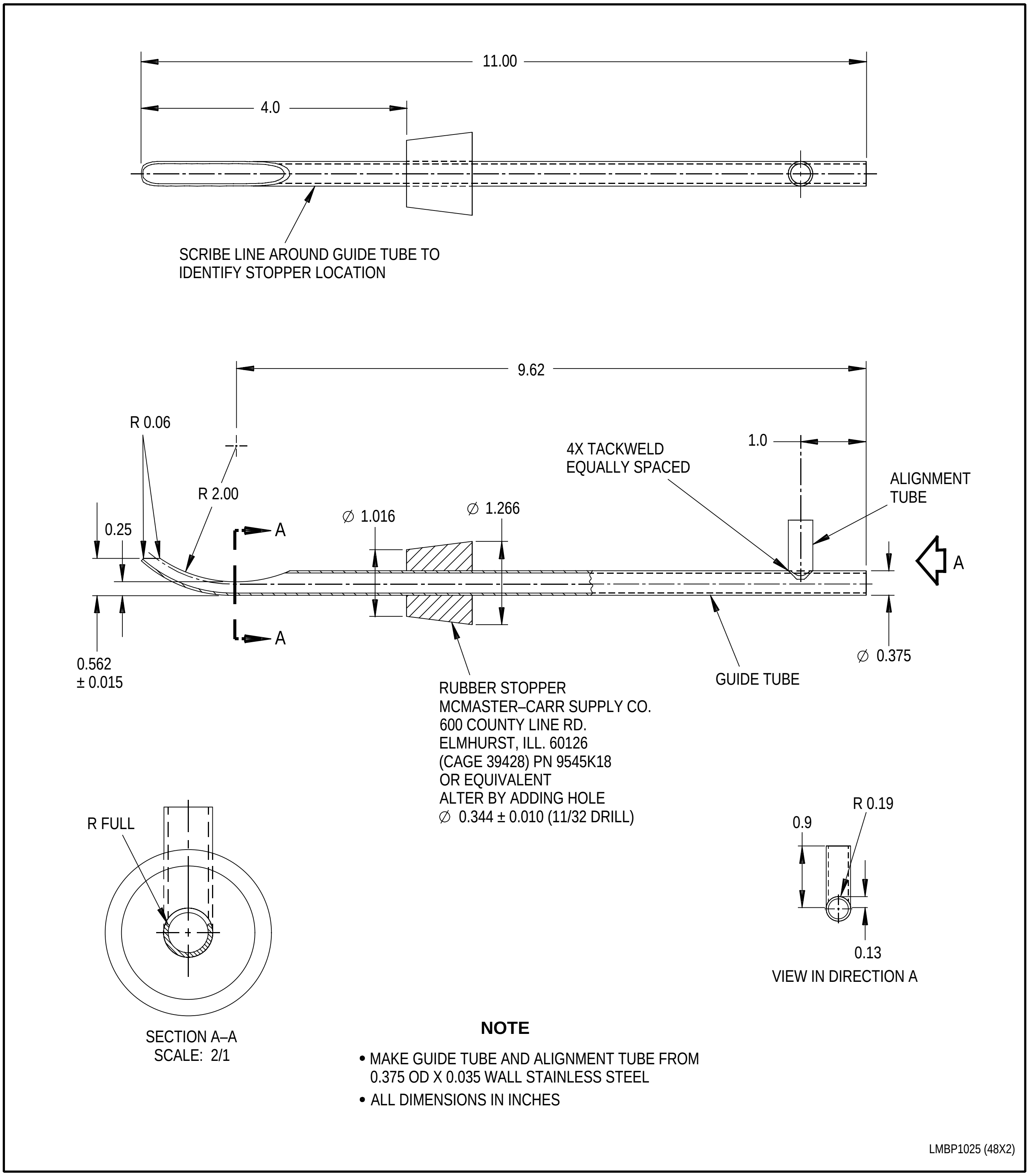
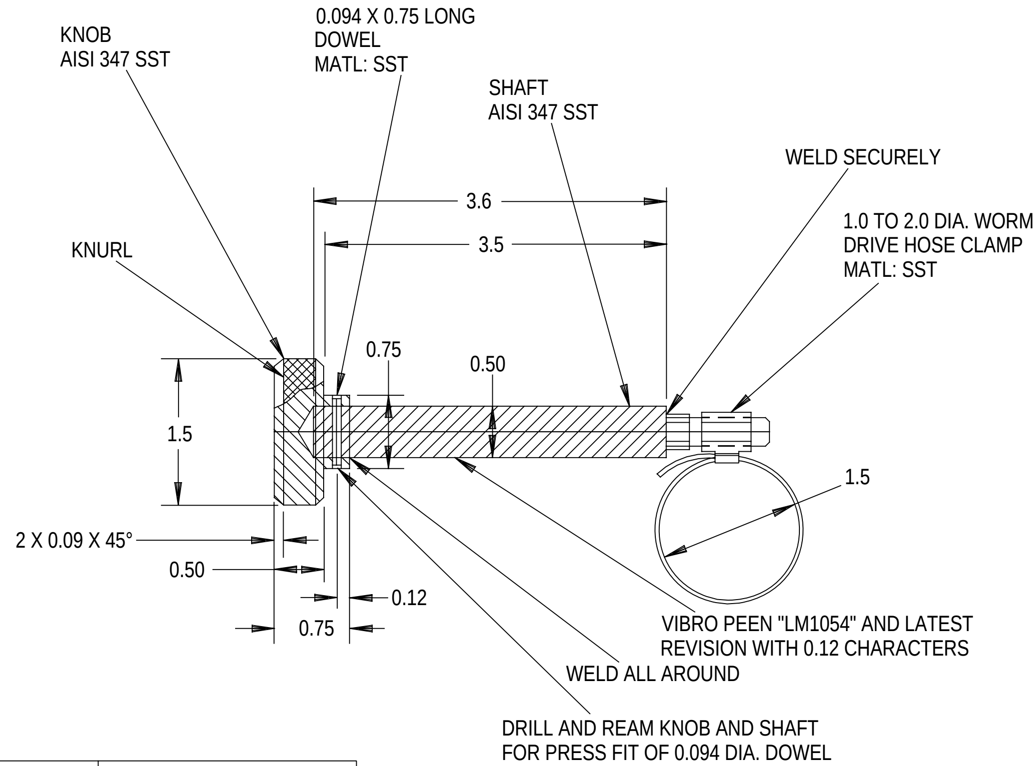


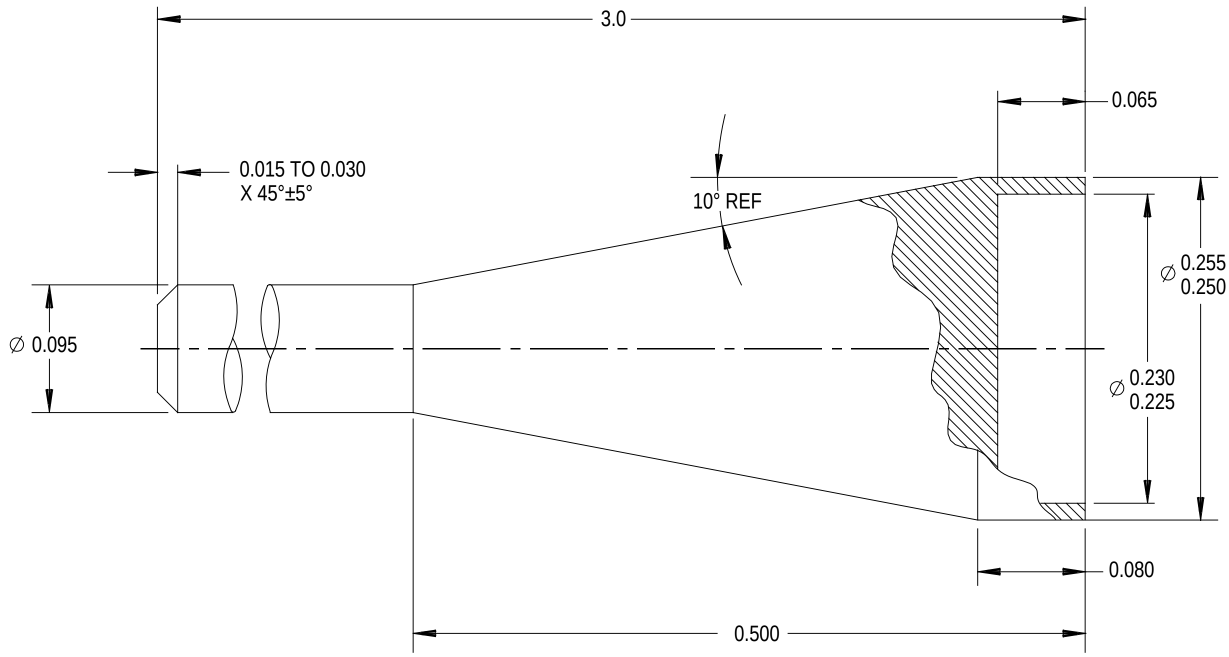
Figure 19. LM 1025 Guide Tube



UNLESS OTHERWISE SPECIFIED	UNLESS OTHERWISE SPECIFIED
PROTECTIVE FINISH AS FURNISHED ACCEPTABLE ON PURCHASED ITEMS	DIMENSIONS IN INCHES .0 ± 0.06
COAT WITH RUST PREVENTATIVE COMPOUND FOR SHIPMENT AND STORAGE ONLY	.00 ± 0.03 ANGLES ± 2°
BLACK OXIDE PER AMS 2495 ALL STEEL ITEMS SEPARATELY	.000 ± 0.005
ANODISE PER AMS 2470 ALL ALUMINUM ITEMS SEPARATELY	BREAK SHARP EDGES .005–.020 CORNERS MUST HAVE FILLETS 0.005 0.020 RAD. MACHINED SURFACES MAY HAVE A MAXIMUM ROUGHNESS OF 250 R.N.S. CASTINGS, FORGINGS, & WELDMENTS MAY BE LEFT UNFINISHED.
WELD SYMBOLS PER AMERICAN WELDING SOCIETY (AWSI STANDARDS)	
STRESS RELIEVE ALL WELDMENTS BEFORE FINISH MACHINING	

LMBP1054 (36X2)

Figure 20. LM 1054 Clamp, No. 4 Bearing Internal Scavenge Tube Heat Shield



MARK BAG AND PLACE LM1053 IN BAG

UNLESS OTHERWISE SPECIFIED	UNLESS OTHERWISE SPECIFIED
PROTECTIVE FINISH AS FURNISHED ACCEPTABLE ON PURCHASED ITEMS.	DIMENSIONS IN INCHES .0 ± 0.060
COAT WITH RUST PREVENTIVE COMPOUND FOR SHIPMENT AND STORAGE ONLY.	.00 ± 0.030 ANGLES ± 2°
BLACK OXIDE ENTIRE TOOL PER AMS 2485	.000 ± .005
WELD SYMBOLS PER AMERICAN WELDING SOCIETY (AWS) STANDARDS	BREAK SHARP EDGES .005 – 0.020 CORNERS MUST HAVE FILLETS 0.005 0.020 RAD.
STRESS RELIEVE ALL WELDMENTS BEFORE FINISH MACHINING	MACHINED SURFACES MAY HAVE A MAXIMUM ROUGHNESS OF 250 R.M.S.
	CASTING, FORGINGS & WELDMENTS MAY BE LEFT UNFINISHED.

NOTES

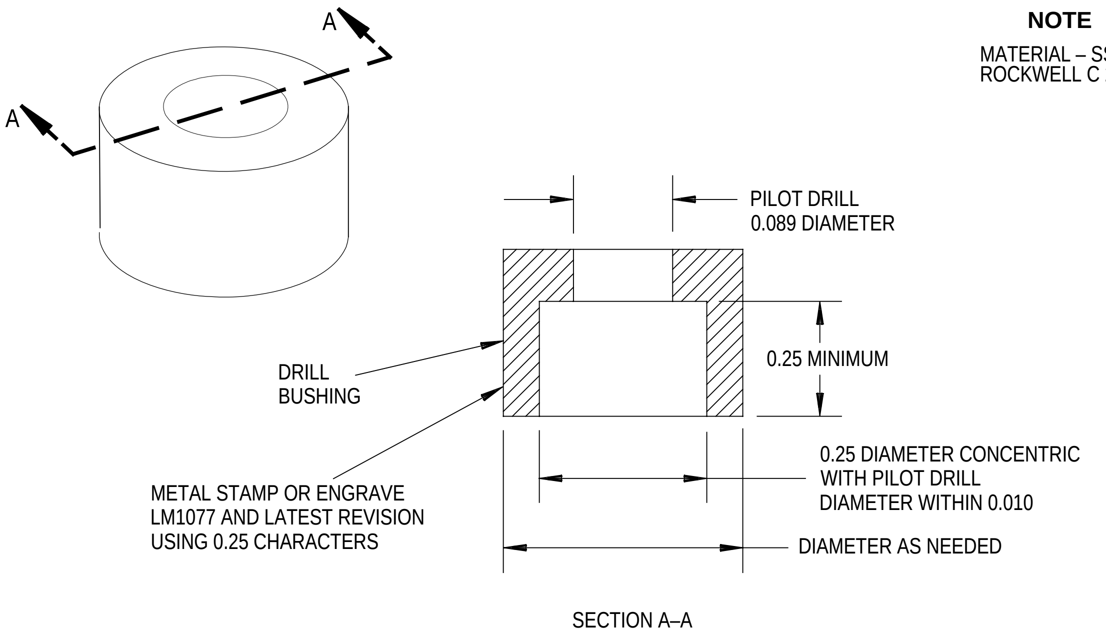
- MATERIAL: AISI 304 STAINLESS STEEL
- MAXIMUM ROUGHNESS: 60 RMS
- ALL DIAMETERS CONCENTRIC WITHIN 0.005

LMBP1053 (36X2)

Figure 21. LM 1053 Adapter, Installer, No. 5 Bearing Support Plug Packing

NOTE

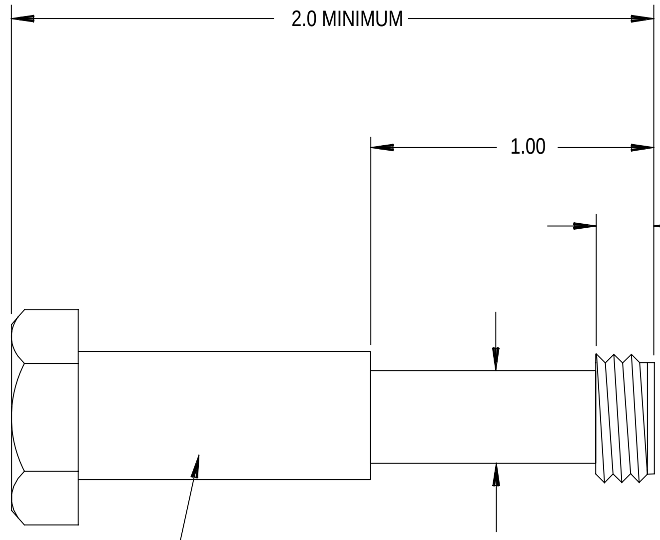
MATERIAL – SST
ROCKWELL C 28 TO 36



UNLESS OTHERWISE SPECIFIED	UNLESS OTHERWISE SPECIFIED
PROTECTIVE FINISH AS FURNISHED ACCEPTABLE ON PURCHASED ITEMS.	DIMENSIONS IN INCHES .0 ± 0.060 .00 ± 0.030 ANGLES ± 2° .000 ± .005
COAT WITH RUST PREVENTIVE COMPOUND FOR SHIPMENT AND STORAGE ONLY.	
BLACK OXIDE ENTIRE TOOL PER AMS 2485	
WELD SYMBOLS PER AMERICAN WELDING SOCIETY (AWS) STANDARDS	BREAK SHARP EDGES .005 – 0.020 CORNERS MUST HAVE FILLETS 0.005 0.020 RAD. MACHINED SURFACES MAY HAVE A MAXIMUM ROUGHNESS OF 250 R.M.S. CASTING, FORGINGS & WELDMENTS MAY BE LEFT UNFINISHED.
STRESS RELIEVE ALL WELDMENTS BEFORE FINISH MACHINING	

LMBP1077 (36X2)

Figure 22. LM 1077 Drill Bushing, Fan Duct Stud

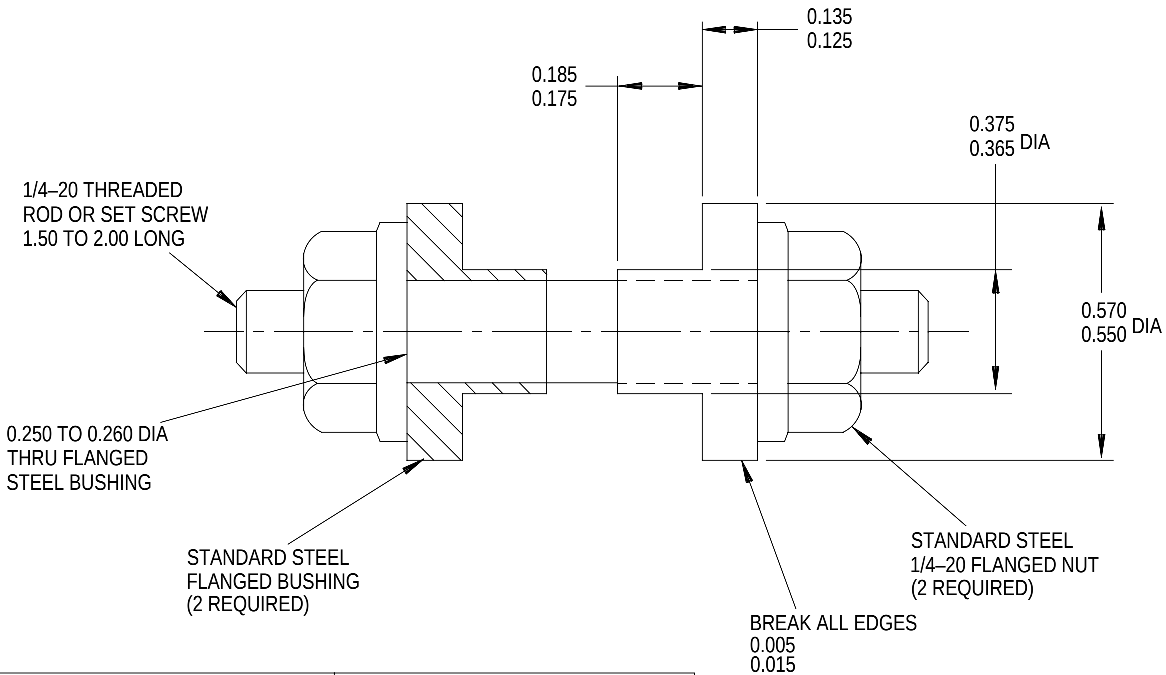


UNLESS OTHERWISE SPECIFIED	UNLESS OTHERWISE SPECIFIED
PROTECTIVE FINISH AS FURNISHED ACCEPTABLE ON PURCHASED ITEMS.	DIMENSIONS IN INCHES .0 ± 0.060
COAT WITH RUST PREVENTIVE COMPOUND FOR SHIPMENT AND STORAGE ONLY.	.00 ± 0.030 ANGLES ± 2°
BLACK OXIDE PER AMS 2485 ALL STEEL ITEMS SEPARATELY.	.000 ± .005
ANODIZE PER AMS 2470 ALL ALUMINUM ITEMS SEPARATELY.	BREAK SHARP EDGES .005 – 0.020 CORNERS MUST HAVE FILLETS 0.005 0.020 RAD.
WELD SYMBOLS PER AMERICAN WELDING SOCIETY (AWS) STANDARDS	MACHINED SURFACES MAY HAVE A MAXIMUM ROUGHNESS OF 250 R.M.S.
STRESS RELIEVE ALL WELDMENTS BEFORE FINISH MACHINING	CASTING, FORGINGS & WELDMENTS MAY BE LEFT UNFINISHED.

NOTE:
- MAKE FROM 7/16–14 BOLT
- MATERIAL – STEEL

LMBP1085 (36X2)

Figure 23. LM 1085 Drift

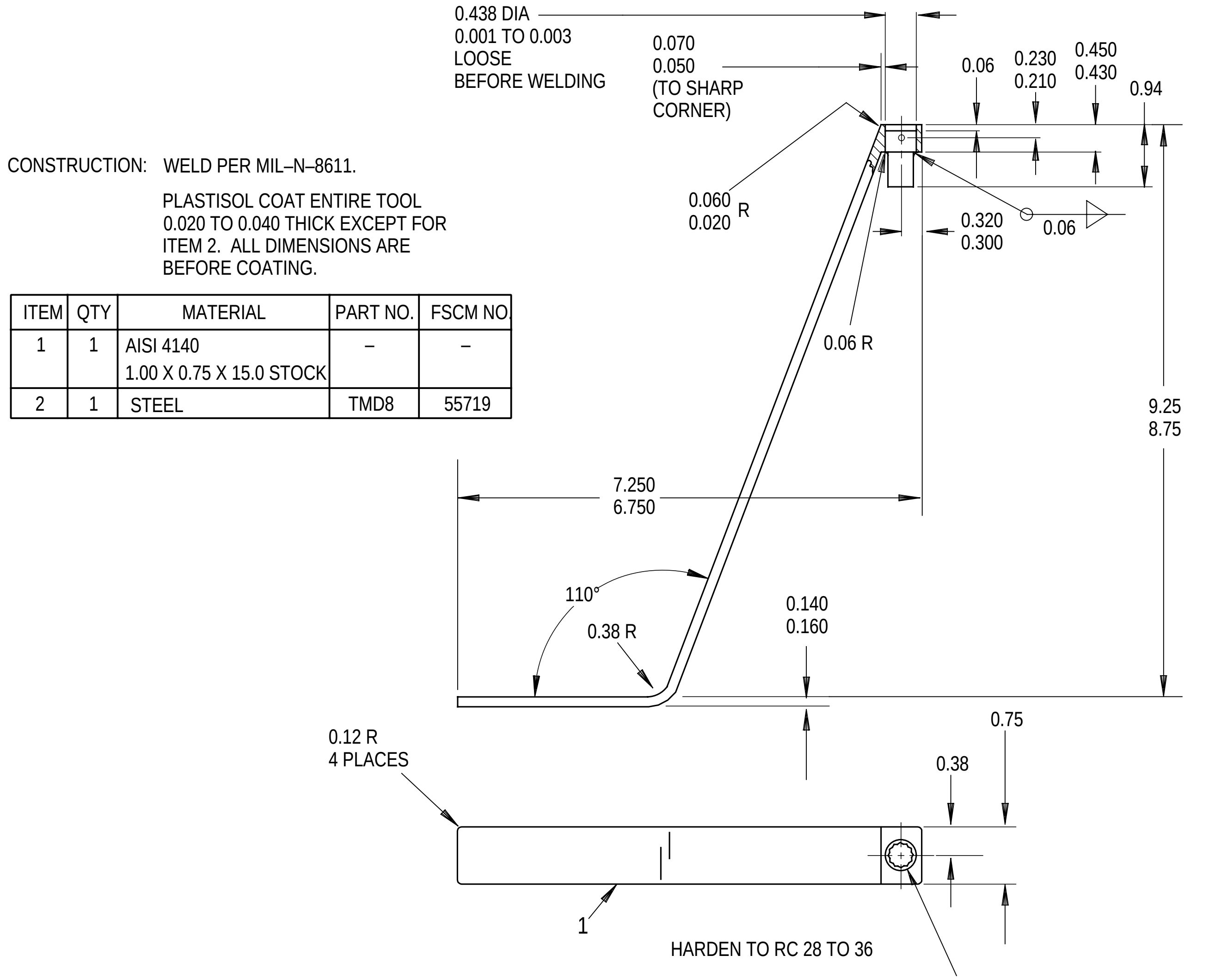


UNLESS OTHERWISE SPECIFIED	UNLESS OTHERWISE SPECIFIED
PROTECTIVE FINISH AS FURNISHED ACCEPTABLE ON PURCHASED ITEMS.	DIMENSIONS IN INCHES .0 ± 0.060
COAT WITH RUST PREVENTIVE COMPOUND FOR SHIPMENT AND STORAGE ONLY.	.00 ± 0.030 ANGLES ± 2°
BLACK OXIDE PER AMS 2485 ALL STEEL ITEMS SEPARATELY.	.000 ± .005
ANODIZE PER AMS 2470 ALL ALUMINUM ITEMS SEPARATELY.	BREAK SHARP EDGES .005 – 0.020 CORNERS MUST HAVE FILLETS 0.005 0.020 RAD.
WELD SYMBOLS PER AMERICAN WELDING SOCIETY (AWS) STANDARDS	MACHINED SURFACES MAY HAVE A MAXIMUM ROUGHNESS OF 250 R.M.S.
STRESS RELIEVE ALL WELDMENTS BEFORE FINISH MACHINING	CASTING, FORGINGS & WELDMENTS MAY BE LEFT UNFINISHED.

METAL TAG LM 1086 WITH
0.12 HIGH CHARACTERS

LMBP1086 (36X2)

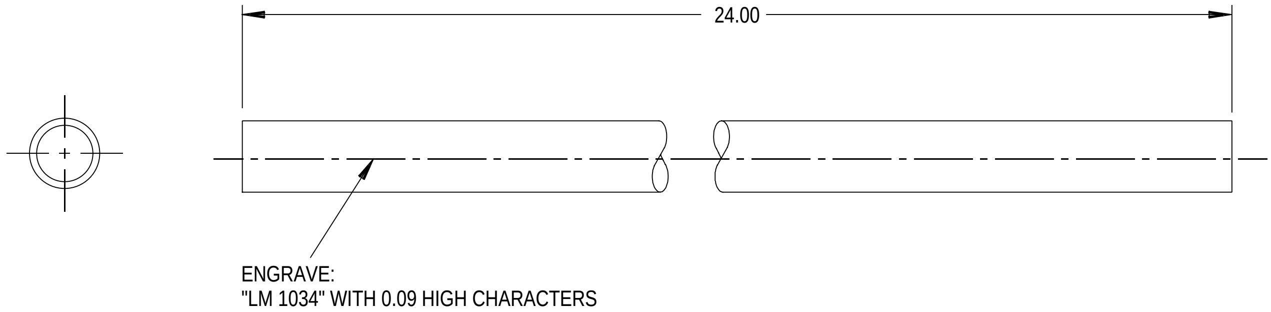
Figure 24. LM 1086 Pusher



ITEM	QTY	MATERIAL	PART NO.	FSCM NO.
1	1	AISI 4140 1.00 X 0.75 X 15.0 STOCK	–	–
2	1	STEEL	TMD8	55719

UNLESS OTHERWISE SPECIFIED	UNLESS OTHERWISE SPECIFIED
PROTECTIVE FINISH AS FURNISHED ACCEPTABLE ON PURCHASED ITEMS.	DIMENSIONS IN INCHES .0 ± 0.060
COAT WITH RUST PREVENTIVE COMPOUND FOR SHIPMENT AND STORAGE ONLY.	.00 ± 0.030 ANGLES ± 2°
BLACK OXIDE PER AMS 2485 ALL STEEL ITEMS SEPARATELY.	.000 ± .005
ANODIZE PER AMS 2470 ALL ALUMINUM ITEMS SEPARATELY.	BREAK SHARP EDGES .005 – 0.020 CORNERS MUST HAVE FILLETS 0.005 0.020 RAD.
WELD SYMBOLS PER AMERICAN WELDING SOCIETY (AWS) STANDARDS	MACHINED SURFACES MAY HAVE A MAXIMUM ROUGHNESS OF 250 R.M.S.
STRESS RELIEVE ALL WELDMENTS BEFORE FINISH MACHINING	CASTING, FORGINGS & WELDMENTS MAY BE LEFT UNFINISHED.

Figure 25. LM 1089 Wrench, Turbine Exhaust Cone Retaining Bolt



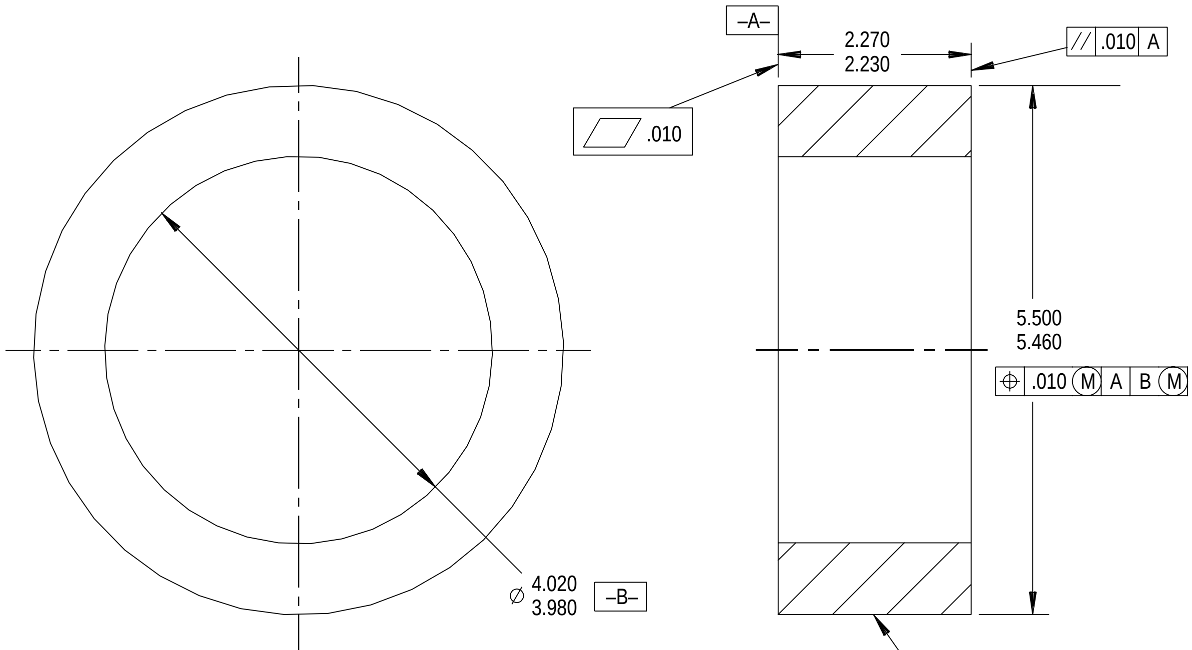
NOTE

1. MATERIAL AISI 304 – TUBING – OD 0.500 X 0.049 WALL

UNLESS OTHERWISE SPECIFIED	UNLESS OTHERWISE SPECIFIED
PROTECTIVE FINISH AS FURNISHED ACCEPTABLE ON PURCHASED ITEMS.	DIMENSIONS IN INCHES .0 ± 0.060 .00 ± 0.030 ANGLES ± 2° .000 ± .005
COAT WITH RUST PREVENTIVE COMPOUND FOR SHIPMENT AND STORAGE ONLY.	
BLACK OXIDE PER AMS 2485 ALL STEEL ITEMS SEPARATELY.	
ANODIZE PER AMS 2470 ALL ALUMINUM ITEMS SEPARATELY.	BREAK SHARP EDGES .005 – 0.020 CORNERS MUST HAVE FILLETS 0.005 0.020 RAD. MACHINED SURFACES MAY HAVE A MAXIMUM ROUGHNESS OF 250 R.M.S. CASTING, FORGINGS & WELDMENTS MAY BE LEFT UNFINISHED.
WELD SYMBOLS PER AMERICAN WELDING SOCIETY (AWS) STANDARDS	
STRESS RELIEVE ALL WELDMENTS BEFORE FINISH MACHINING	

LMBP1034 (36X2)

Figure 26. LM 1034 Guide Tube, Borescope Inspection



ENGRAVE OR METAL STAMP:
LM 1022 WITH 0.25 HIGH CHARACTERS

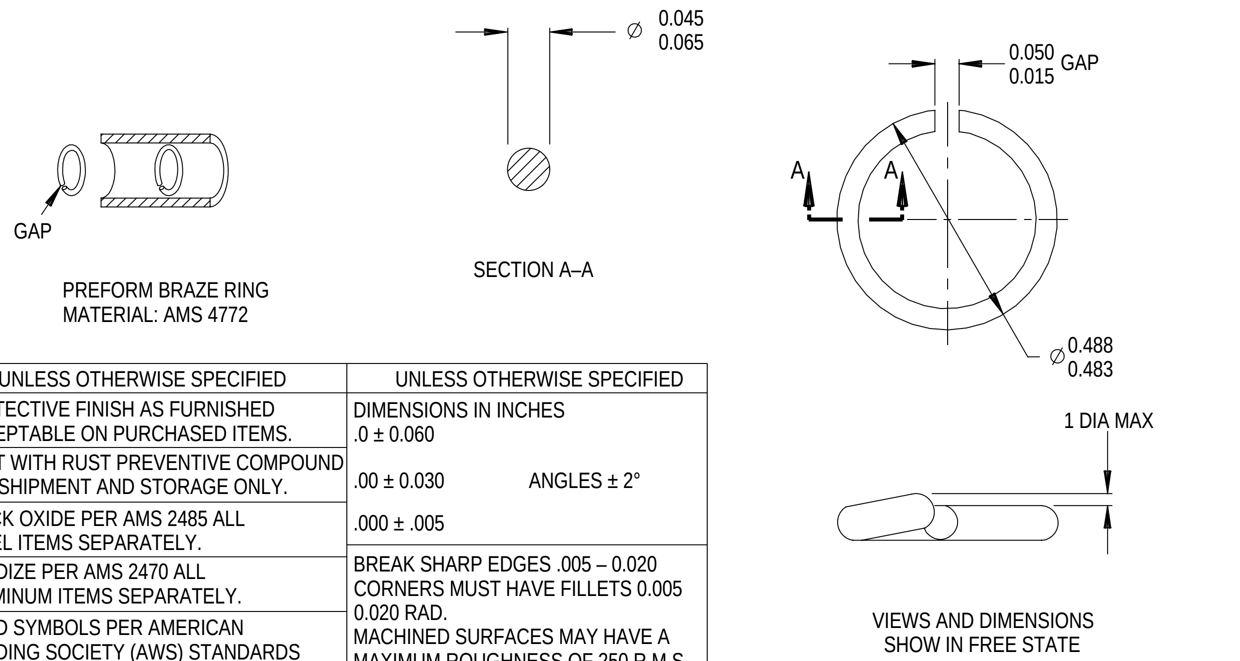
UNLESS OTHERWISE SPECIFIED	UNLESS OTHERWISE SPECIFIED
PROTECTIVE FINISH AS FURNISHED ACCEPTABLE ON PURCHASED ITEMS.	DIMENSIONS IN INCHES .0 ± 0.060
COAT WITH RUST PREVENTIVE COMPOUND FOR SHIPMENT AND STORAGE ONLY.	.00 ± 0.030 ANGLES ± 2°
BLACK OXIDE PER AMS 2485 ALL STEEL ITEMS SEPARATELY.	.000 ± .005
ANODIZE PER AMS 2470 ALL ALUMINUM ITEMS SEPARATELY.	BREAK SHARP EDGES .005 – 0.020 CORNERS MUST HAVE FILLETS 0.005 0.020 RAD.
WELD SYMBOLS PER AMERICAN WELDING SOCIETY (AWS) STANDARDS	MACHINED SURFACES MAY HAVE A MAXIMUM ROUGHNESS OF 250 R.M.S.
STRESS RELIEVE ALL WELDMENTS BEFORE FINISH MACHINING	CASTING, FORGINGS & WELDMENTS MAY BE LEFT UNFINISHED.

NOTE

MATERIAL AISI 6061–T6

LMBP1022 (36X2)

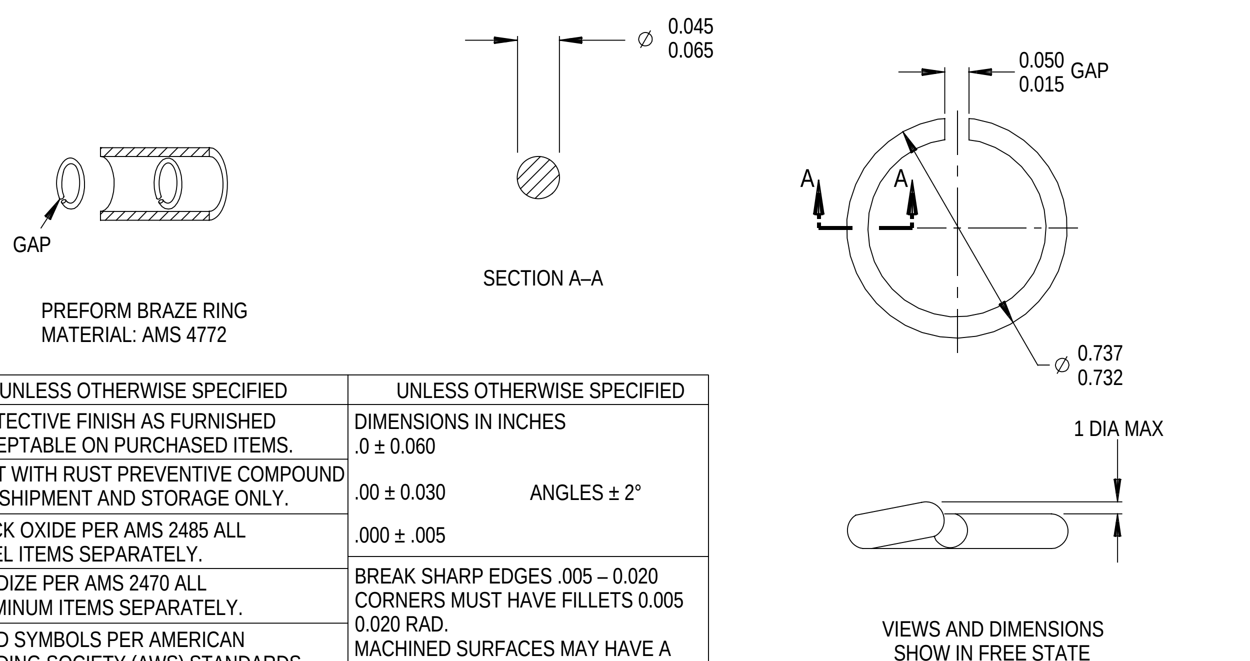
Figure 27. LM 1022 Spacer



UNLESS OTHERWISE SPECIFIED	UNLESS OTHERWISE SPECIFIED
PROTECTIVE FINISH AS FURNISHED ACCEPTABLE ON PURCHASED ITEMS.	DIMENSIONS IN INCHES .0 ± 0.060
COAT WITH RUST PREVENTIVE COMPOUND FOR SHIPMENT AND STORAGE ONLY.	.00 ± 0.030 ANGLES ± 2°
BLACK OXIDE PER AMS 2485 ALL STEEL ITEMS SEPARATELY.	.000 ± .005
ANODIZE PER AMS 2470 ALL ALUMINUM ITEMS SEPARATELY.	BREAK SHARP EDGES .005 – 0.020 CORNERS MUST HAVE FILLETS 0.005 0.020 RAD.
WELD SYMBOLS PER AMERICAN WELDING SOCIETY (AWS) STANDARDS	MACHINED SURFACES MAY HAVE A MAXIMUM ROUGHNESS OF 250 R.M.S.
STRESS RELIEVE ALL WELDMENTS BEFORE FINISH MACHINING	CASTING, FORGINGS & WELDMENTS MAY BE LEFT UNFINISHED.

LMBP1070 (24X2)

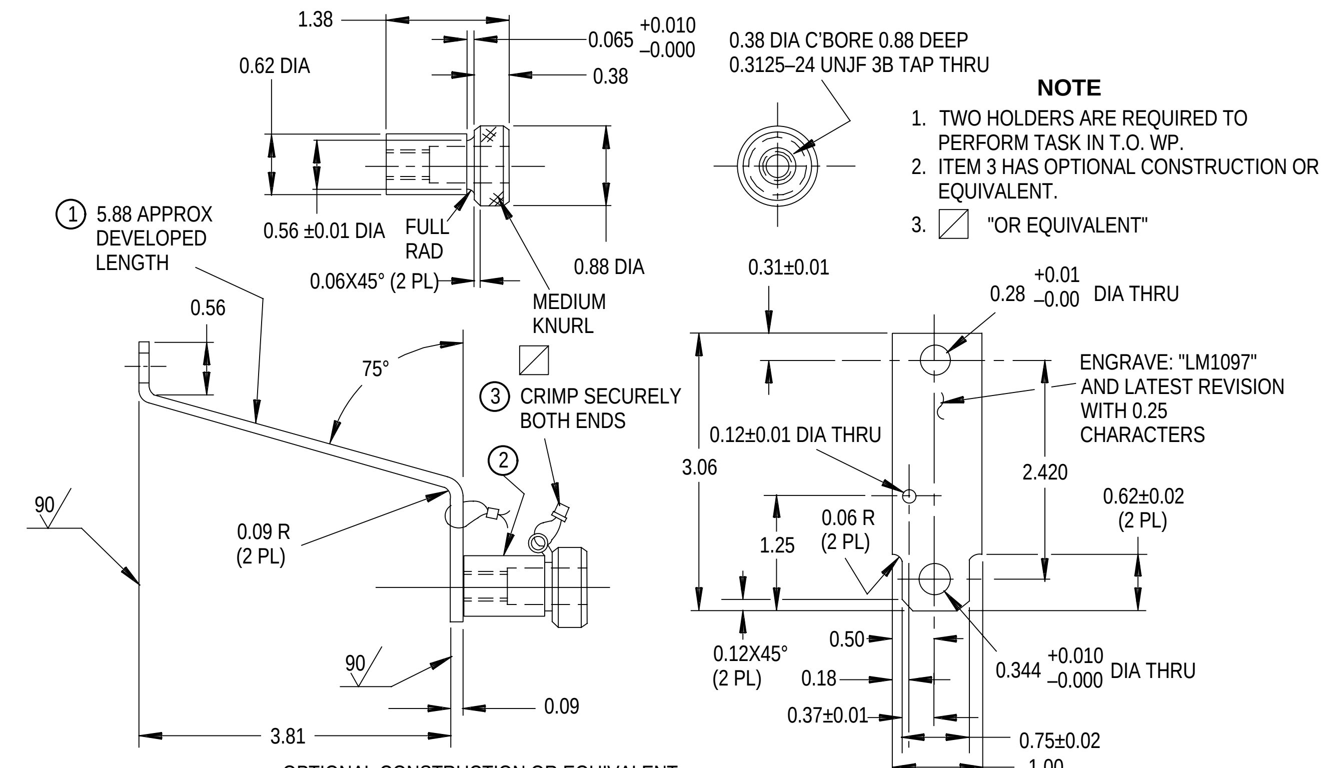
Figure 28. LM 1070 Braze Preform - No. 4 Bearing Scavenge Tube, Braze to Connector and to Case



UNLESS OTHERWISE SPECIFIED	UNLESS OTHERWISE SPECIFIED
PROTECTIVE FINISH AS FURNISHED ACCEPTABLE ON PURCHASED ITEMS.	DIMENSIONS IN INCHES .0 ± 0.060
COAT WITH RUST PREVENTIVE COMPOUND FOR SHIPMENT AND STORAGE ONLY.	.00 ± 0.030 ANGLES ± 2°
BLACK OXIDE PER AMS 2485 ALL STEEL ITEMS SEPARATELY.	.000 ± .005
ANODIZE PER AMS 2470 ALL ALUMINUM ITEMS SEPARATELY.	BREAK SHARP EDGES .005 – 0.020 CORNERS MUST HAVE FILLETS 0.005 0.020 RAD.
WELD SYMBOLS PER AMERICAN WELDING SOCIETY (AWS) STANDARDS	MACHINED SURFACES MAY HAVE A MAXIMUM ROUGHNESS OF 250 R.M.S.
STRESS RELIEVE ALL WELDMENTS BEFORE FINISH MACHINING	CASTING, FORGINGS & WELDMENTS MAY BE LEFT UNFINISHED.

LMBP1071 (24X2)

Figure 29. LM 1071 Braze Preform - No. 4 Bearing Scavenge Tube, Braze to Connector and Ferrule

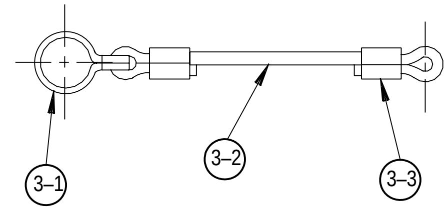


OPTIONAL CONSTRUCTION OR EQUIVALENT

ITEM	QTY	MATERIAL	PART NO	FSCM NO	NSN
3–1	1	STEEL CABLE RING	CL–9–KR	99862	5365–01–259–6167
3–2	1	STEEL, NYLON COATED, WIRE ROPE 0.063 DIA X 6 LONG	CL–2–C–6	99862	4010–01–198–5917
3–3	2	COPPER FERRULE	CL–2–F	99862	4030–00–878–8693

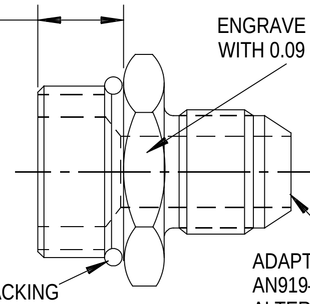
ITEM	QTY	MATERIAL	PART NO	FSCM NO
1	1	AISI 1018 STOCK 1.00 X 0.09 X 5.88 (APRX)		
2	1	AISI 1018 STOCK 0.88 DIA X 1.38		
3	1	STEEL–NYLON COATED CABLE ASSY 0.063 DIA X 5 LONG	CL–42–KA–5.0–9–LR (SEE NOTE 2)	99862

UNLESS OTHERWISE SPECIFIED	UNLESS OTHERWISE SPECIFIED
PROTECTIVE FINISH AS FURNISHED ACCEPTABLE ON PURCHASED ITEMS.	DIMENSIONS IN INCHES .0 ± 0.060
COAT WITH RUST PREVENTIVE COMPOUND FOR SHIPMENT AND STORAGE ONLY.	.00 ± 0.030 ANGLES ± 2°
BLACK OXIDE PER AMS 2485 ALL STEEL ITEMS SEPARATELY.	.000 ± .005
ANODIZE PER AMS 2470 ALL ALUMINUM ITEMS SEPARATELY.	BREAK SHARP EDGES 0.005 – 0.020 CORNERS MUST HAVE FILLETS 0.005 0.020 RAD.
WELD SYMBOLS PER AMERICAN WELDING SOCIETY (AWS) STANDARDS	MACHINED SURFACES MAY HAVE A MAXIMUM ROUGHNESS OF 250 R.M.S.
STRESS RELIEVE ALL WELDMENTS BEFORE FINISH MACHINING	CASTING, FORGINGS & WELDMENTS MAY BE LEFT UNFINISHED.



LMBP1097 (48X2)

Figure 30. LM 1097 Holder, Compression - No. 4 Bearing Front Carbon Seal

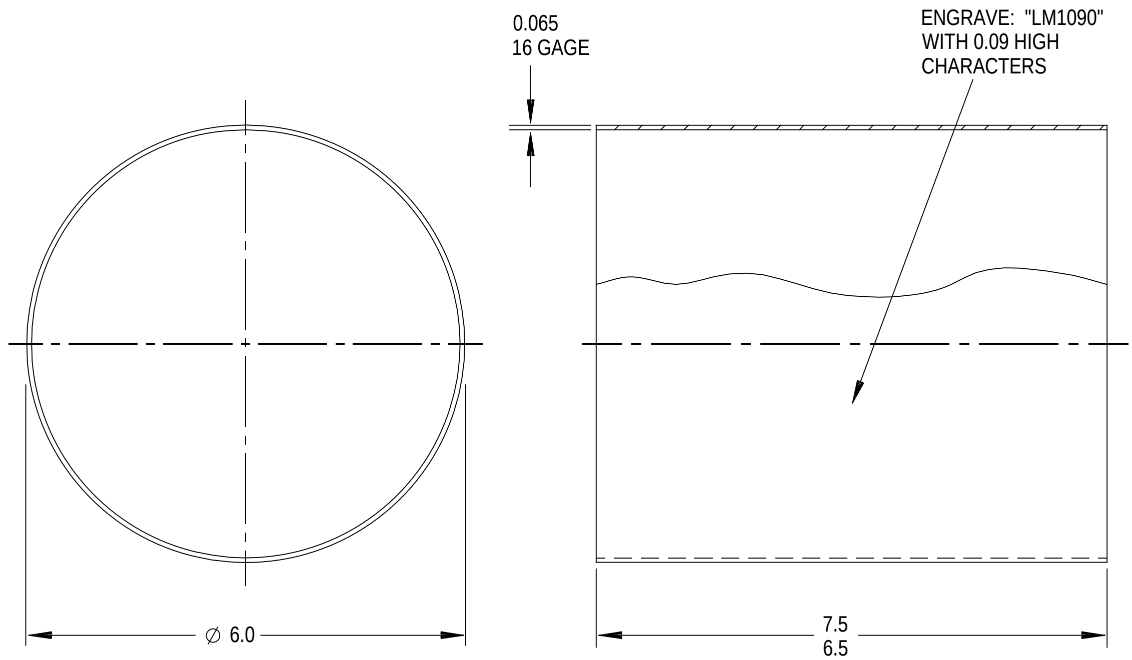


UNLESS OTHERWISE SPECIFIED	UNLESS OTHERWISE SPECIFIED
PROTECTIVE FINISH AS FURNISHED ACCEPTABLE ON PURCHASED ITEMS.	DIMENSIONS IN INCHES .0 ± 0.060
COAT WITH RUST PREVENTIVE COMPOUND FOR SHIPMENT AND STORAGE ONLY.	.00 ± 0.030 ANGLES ± 2°
BLACK OXIDE PER AMS 2485 ALL STEEL ITEMS SEPARATELY.	.000 ± .005
ANODIZE PER AMS 2470 ALL ALUMINUM ITEMS SEPARATELY.	BREAK SHARP EDGES .005 – 0.020 CORNERS MUST HAVE FILLETS 0.005 0.020 RAD.
WELD SYMBOLS PER AMERICAN WELDING SOCIETY (AWS) STANDARDS	MACHINED SURFACES MAY HAVE A MAXIMUM ROUGHNESS OF 250 R.M.S.
STRESS RELIEVE ALL WELDMENTS BEFORE FINISH MACHINING	CASTING, FORGINGS & WELDMENTS MAY BE LEFT UNFINISHED.

CHANGE A
5/23/97

LMBP1050 (24X2)

Figure 31. LM 1050 Adapter, Preservation - Fuel Nozzles, Fuel Manifolds, Installed



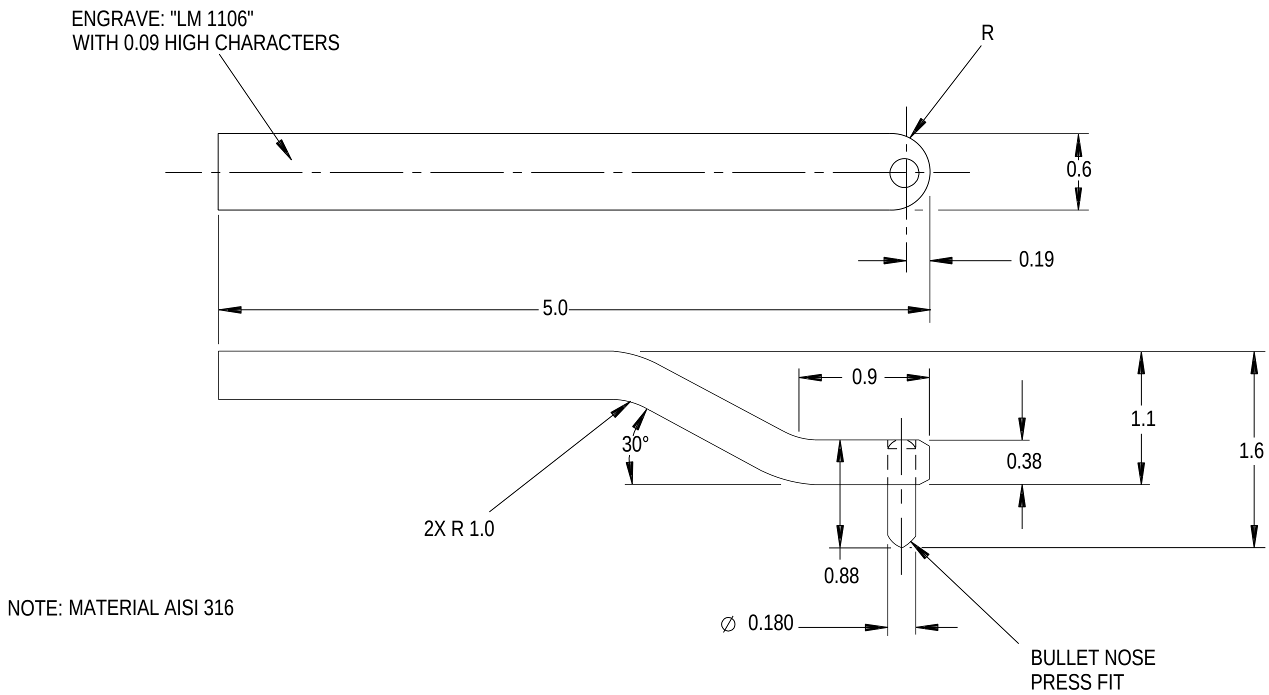
<table>
<tr><th>UNLESS OTHERWISE SPECIFIED</th><th>UNLESS OTHERWISE SPECIFIED</th></tr>
<tr><td>PROTECTIVE FINISH AS FURNISHED ACCEPTABLE ON PURCHASED ITEMS.</td><td rowspan="3">DIMENSIONS IN INCHES
.0 ± 0.060
.00 ± 0.030 ANGLES ± 2°
.000 ± .005</td></tr>
<tr><td>COAT WITH RUST PREVENTIVE COMPOUND FOR SHIPMENT AND STORAGE ONLY.</td></tr>
<tr><td>BLACK OXIDE PER AMS 2485 ALL STEEL ITEMS SEPARATELY.</td></tr>
<tr><td>ANODIZE PER AMS 2470 ALL ALUMINUM ITEMS SEPARATELY.</td><td rowspan="3">BREAK SHARP EDGES .005 – 0.020
CORNERS MUST HAVE FILLETS 0.005 0.020 RAD.
MACHINED SURFACES MAY HAVE A MAXIMUM ROUGHNESS OF 250 R.M.S.
CASTING, FORGINGS & WELDMENTS MAY BE LEFT UNFINISHED.</td></tr>
<tr><td>WELD SYMBOLS PER AMERICAN WELDING SOCIETY (AWS) STANDARDS</td></tr>
<tr><td>STRESS RELIEVE ALL WELDMENTS BEFORE FINISH MACHINING</td></tr>
</table>

NOTE

1. MATERIAL: CARBON STEEL – TUBING – OD 6.0 X 0.065 WALL
2. OPTIONAL CONSTRUCTION: ROLLED, OVERLAPPED 0.5 TO 1.0 AND TACK WELDED OR RIVETED TOGETHER

LMBP1090 (36X2)

Figure 32. LM 1090 Container - Dry Ice



UNLESS OTHERWISE SPECIFIED	UNLESS OTHERWISE SPECIFIED
PROTECTIVE FINISH AS FURNISHED ACCEPTABLE ON PURCHASED ITEMS.	DIMENSIONS IN INCHES .0 ± 0.060
COAT WITH RUST PREVENTIVE COMPOUND FOR SHIPMENT AND STORAGE ONLY.	.00 ± 0.030 ANGLES ± 2°
BLACK OXIDE PER AMS 2485 ALL STEEL ITEMS SEPARATELY.	.000 ± 0.005
ANODIZE PER AMS 2470 ALL ALUMINUM ITEMS SEPARATELY.	BREAK SHARP EDGES 0.005 TO 0.020 CORNERS MUST HAVE FILLETS 0.005 0.020 RAD.
WELD SYMBOLS PER AMERICAN WELDING SOCIETY (AWS) STANDARDS	MACHINED SURFACES MAY HAVE A MAXIMUM ROUGHNESS OF 250 R.M.S.
STRESS RELIEVE ALL WELDMENTS BEFORE FINISH MACHINING	CASTING, FORGINGS & WELDMENTS MAY BE LEFT UNFINISHED.

LMBP1106 (36X2)

Figure 33. LM 1106 Pin, Alignment - Diffuser Case To HPC Rear Support

WORK PACKAGE

TECHNICAL PROCEDURES

LIFT AND SUPPORT -

ADAPTERS, BRACKETS, FIXTURES, RETAINERS

EFFECTIVITY: ENGINE MODEL F100-PW-229

LIST OF EFFECTIVE WP PAGES

Total Number of Pages in this WP is 10

PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.
1 - 5	30	7 - 8	30	9 Added	30
6 Blank	30			10 Blank Added	30

REFERENCE MATERIAL REQUIRED

Title	Number
Aircraft and Engine Slings (General) and Restraining Devices	T.O. 35D6-1-106
Nondestructive Inspection Methods	T.O. 33B-1-1
Standard Maintenance Procedures	T.O. 2-1-111
Support Equipment And Numerical Tool List	T.O. 2J-F100-53-3
PWA 51415 Support, Transverse - Transfer Adapter	WP 037 00
PWA 51920 Adapter - Rear Transfer	WP 038 00
PWA 51921 Adapter - Front Transfer	WP 039 00

APPLICABLE TIME COMPLIANCE TECHNICAL ORDERS

None

CONSUMABLE MATERIALS

Nomenclature	Specification/Vendor Part Number
CLOTH, LINT-FREE	-
OIL, PRESERVATIVE	MIL-L-6081, GRADE 1010
SOLVENT, PETROLEUM	P-D-680, TYPE II OR TYPE III

EXPENDABLE ITEMS

None

APPLICABLE SUPPORT EQUIPMENT

None

ILLUSTRATED SUPPORT EQUIPMENT

None

1. INTRODUCTION.

(See Table 1.)

a. This work package contains maintenence instructions for the following support equipment listed in table 1.

NOTE

- The table list support equipment that may be superseded by another item, but may still be in inventory and in use.
- Table 1 includes the FPI frequency for each piece of support equipment. Used with table 2 Serviceable and Replacement Limits.

Table 1. SUPPORT EQUIPMENT WITH FPI FREQUENCY REQUIREMENTS

FPI FREQUENCY		P/N	NOMENCLATURE
1 YR	1.	PWA 26584	Arm - Lift and Turn
1 YR	2.	PWA 50332	Eye - Lift Fan Rotor, Front
1 YR	3.	PWA 50361	Adapter - Mount Link Engine, Front
1 YR	4.	PWA 50473	Adapter - Holding, Main Gearbox Build and Transport Stand
1 YR	5.	PWA 50508	Fixture - Handling, Main Gearbox Module
1 YR	6.	PWA 50747	Adapter - Inlet Fan Module, Front Retainer to Horizontal Stand, Left
1 YR	7.	PWA 51026	Eye - Lifting, Fan Drive Turbine Shaft, Rear
1 YR	8.	PWA 51056	Eye - Lifting, Fan Drive Turbine Shaft, Front
1 YR	9	PWA 51111	Adapter - Engine Support Top Front (ROS)
1 YR	10.	PWA 51112	Adapter - Engine Support Lower Rear (ROS)
1 YR	11.	PWA 51113	Adapter - Engine Support Upper Rear (ROS)
1 YR	12.	PWA 51124	Adapter - Lift & Turn (Engine Thrust Mounts)
1 YR	13.	PWA 51225	Adapter - Rear Compressor Turbine Rotor Lifting (HPT)
1 YR	14.	PWA 51245	Adapter - Inlet Fan Module, Front Ret.To Horz Support, Right
1 YR	15	PWA51298	Eye - Lifting - Rear Compressor Rotor and Stator Rear Hub
1 YR	16.	PWA 51324	Bracket - Comp. Intermed. Case, Horz. Mount, Right
1 YR	17.	PWA 51325	Bracket - Compressor Intermediate Case, Horz. Mount, Left

Table 1. SUPPORT EQUIPMENT WITH FPI FREQUENCY REQUIREMENTS (continued)

FPI FREQUENCY		P/N	NOMENCLATURE
1 YR	18.	PWA 51370	Eye - Engine, Lift & Turn (Int Case)
1 YR	19.	PWA 51371	Eye - Lift Rear Compressor Rotor and Stator Front Hub
1 YR	20.	PWA 51415	Adapter - Support, Transverse Engine Transfer (See T.O. 2J-F100-53-3 WP 037 00 for maintenance instruction)
1 YR	21.	PWA 51420	Adapter - Lifting, Fan Ducts Adjustable, Front
1 YR	22.	PWA 51920	Adapter - Engine Transfer, Rear (See T. O. 2J-F100-53-3 WP 038 00 for maintenance instructions)
1 YR	23.	PWA 51921	Adapter - Engine Transfer, Front (See T.O. 2J-F100-53-3 WP 039 00 for maintenance instructions)
1 YR	24	PWA 52516	Eye - Lifting Adapter Assembly Engine Overhead Support
1 YR	25.	PWA 52578	Sling - Handling, Outer Fan Ducts, Rear
1 YR	26.	PWA 52679	Adapter - Lift, Augmentor Nozzle Front Flange, Vertical Only
1 YR	27.	PWA 56333	Housing - Inlet Fan Module Simulating
1 YR	28.	PWA 56579	Fixture - Handling Main Gearbox Module and Fuel Pump
1 YR	29.	PWA 56637	Sling - Handling Outer Fan Duct Rear
1 YR	30.	PWA 56680	Housing - Inlet Fan Module Simulating
1 YR	31.	PWA 56732	Retainer - Rear, Core Engine Module
1 YR	32.	PWA 57071	Fixture - Handling Gearbox Module
1 YE	33.	PWA 57506	Fixture - Guide, Installation and Removal. TOBI, Combustor,and 1st Vanes
1 YR	34.	PWA 57516	Fixture - Lift, 7th through 13th Stage Rotor or 4th and 5th Stage Rotor
1 YR‘	35	PWA 57601	Trunnion - Lift, Intermediate Case, Front Flange
1 YR	36.	PWA 57603	Fixture - Lift 4th and 5th Stage Disk By Front Bore
1 YR	37.	PWA 57614	Retainer - Inlet Fan Module Handling Front
1 YR	38.	PWA 57615	Retainer - Inlet Fan Module, Handling Rear
1 YR	39.	PWA 57617	Bracket - Set, Horizontal Inlet/Fan Module
1 YR	40.	PWA 57623	Adapter - Trunnion Core Engine Front
1 YR	41.	PWA 57635	Adapter - Trunnion Core Engine Rear

Table 1. SUPPORT EQUIPMENT WITH FPI FREQUENCY REQUIREMENTS (continued)

FPI FREQUENCY		P/N	NOMENCLATURE
1 YR	42.	PWA 57642	Eye - Lifting - Fan Drum Rotor, Rear Hub
1 YR	43.	PWA 57648	Retainer - Fan Drive Turbine Module, Front (Detail of PWA 57767)
1 YR	44.	PWA 57667	Fixture - Balance - Front Compressor Drive Turbine Rotor and Stator Assy Front
1 YR	45.	PWA 57699	Fixture - Balance - Front Compressor, Rear
1 YR	46.	PWA 57700	Fixture - Balance - Fan, Front
1 YR	47.	PWA 57712	Adapter - Rmv/Install HPT Rotor and Stator Assembly
1 YR	48.	PWA 57715	Fixture - Balance - Front Compressor Rotor and Stator Assy Rear
1 YR	49.	PWA 57730	Eye - Lifting, Front Fan Ducts
1 YR	50.	PWA 57731	Bracket - Set, Front Fan Duct Horizontal Mounting
1 YR	51.	PWA 57766	Adapter - Lift and Trunnion, Fan Drive Turbine Module (Detail of PW 57767 and PWA 57833)
1 YR	52	PWA 57767	Set - Tool, Fan Drive Turbine Module Handling (Contains Details PWA 57648, PWA 57766, and PWA 57709)
1 YR	53	PWA 57803	Retainer - Inlet Fan module, Handling Front
1 YR	54.	PWA 57814	Adapter - Fan Drive Turbine Case
1 YR	55.	PWA 57833	Set - Tool Fan Drive Turbine Module Handling (Contains details PWA 57766, PWA 57819, and PWA 57824)
1 YR	56.	PWA 57919	Fixture - Lift Install, Combustor HPT Case
1 YR	57.	PWA 57920	Adapter - Lift/Align HP Turbine Module
1 YR	58.	PWA 57937	Fixture - Lifting Rear Compressor Rotor and Stator, Front Hub
1 YR	59.	PWA 57938	Fixture - Lifting Rear Compressor Rotor and Stator, Rear Hub
1 YR	60.	PWA 71096	Eye - Lifting, Fan Disc Drum Rotor, Front Assy
1 YR	61.	PWA 71292	Adapter - Rear, Lift Disk Drum Rotor, Front Compressor Assy
3 YR	62.	PWA 8772-101	Adapter - Assembly, Engine Support (Contains detail PWA 8518)
1 YR	63.	PWA 8797	Adapter - Assembly, Engine Support (Contains detail PWA 8518 and PWA 51941)

All data on page 6, deleted

2. CLEANING.

a. Use soft bristle brush to loosen dirt and remove foreign material from fixture.

b. Remove grease from tooling using P-D-680 petroleum solvent or equivalent. Wipe solvent from fixture with clean, dry, lint-free cloth.

c. Dry fixture with compressed air at 30 psig maximum discharge pressure.

3. INSPECTION.

(See Tables 1 and 2.)

a. For detailed inspection of:
PWA 51415 Support, see WP 037 00
PWA 51920 Adapter, see WP 038 00
PWA 51921 Adapter, see WP 039 00

b. Inspect support equipment per tables 1 and 2.

c. Inspect support equipment for cracked, bent or broken details or any other signs of failure.

d. Fluorescent Penetrant Inspect (FPI) tooling, per table 1 and 2. Inspect weld areas and heat associated heat-affected zones of tooling. Use fluorescent penetrant, Type I, Method C, Sensitivity Level 3, Form b, c, or d, or Method D, Sensitivity Level 4, Form b, c, or d. Refer to T.O. 33B-1-1.

4. REPAIR/REPLACEMENT.

(See table 2.)

a. For repair/replacement of:
PWA 51415 Support, see WP 037 00
PWA 51920 Adapter, see WP 038 00
PWA 51921 Adapter, see WP 039 00

b. Replace details as required. See T.O. 2J-F100-94 Support Equipment Illustrated Parts Breakdown.

c. Where tool has coating bare spots, touch up as follows:

(1) For steel details touch up with black oxide, Presto Black PC10 or Gun Blue PB22.

(2) For aluminum details touch up with anodize treatment or Alodine 600.

(3) For painted details: apply one coat zinc chromate primer, AMS 3110, TT-P-1757, and two coats gray enamel, FED-STD-595, No. 16473.

d. Repair weld areas of PWA 21604 support (a detail of PWA 8772-101) by blending the weld area only and not the parent structure, with a carbide burr tool if conditions in Table 2 are detected. Do not remove more than 0.010 inch in one blend procedure. Maximum of six blend procedures and material removal of 0.060 inch with smooth transitions. Reinspect per paragraph 3.

e. Apply MIL-L-6081, Grade 1010 corrosion preventive oil before storing.

Table 2. Serviceable and Replacement Limits

Frequency	Inspection Area	Inspection Method And Condition	Maximum Serviceable Limits	Maximum Reparable Limits	Corrective Action
See step 3.d.	All welds	FPI for cracks	Not serviceable	For PWA 21604 (a detail of PWA 8772-101) the limit is 0.060 inch of weld, not parent material. All others not reparable.	For PWA 21604 repair by blending. For all others replace detail or assembly.
Each use	Entire tool	Visual for nicks and burrs	Not serviceable	See corrective action	Remove all pickup and high metal with a fine stone. Refer to T.O. 2-1-111.
Each use	Entire tool	Visual for broken, or missing details	Not serviceable	Not reparable	Replace detail(s).
Each use	Bolt(s), nut(s), screw(s)	Visual for nicks, burrs, thread damage	Not serviceable	See corrective action	Remove all pickup and high metal with a fine stone. Chase threads or replace. Refer to T.O. 2-1-111.
Each use	Cable(s), lanyard(s)	Visual for broken or frayed cables	Not serviceable	Not reparable	Replace cable(s).

Table 2. Serviceable and Replacement Limits (continued)

Frequency	Inspection Area	Inspection Method And Condition	Maximum Serviceable Limits	Maximum Reparable Limits	Corrective Action
Each use	Pin(s)	Visual for wear, grooves, strain, and distortion	Not serviceable	Not reparable	Replace pin(s).
Each use	Entire tool	Visual for coating	No bare spots	Any amount	For steel details: Black oxide per AMS 2485, Gun Blue or equivalent. For aluminum details: Anodize-treat per AMS 2470, AMS 2472 or apply Alodine or hardcoat per AMS 2468 or equivalent. For painted details: apply one coat zinc chromate primer AMS 3110, TT-P-1757, and two coats gray enamel FED-STD-595, No. 16473.

WORK PACKAGE

TECHNICAL PROCEDURES

SLINGS AND HOOKS

EFFECTIVITY: ENGINE MODEL F100-PW-229

LIST OF EFFECTIVE WP PAGES

Total Number of Pages in this WP is 6

PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.	PAGE NO.	CHANGE NO.
1 - 6	28				

REFERENCE MATERIAL REQUIRED

Title	Number
Nondestructive Inspection Methods - - - - - - - - - - - - -	T.O. 33B-1-1
Aircraft and Engine Slings (General) and Restraining Devices -	T.O. 35D6-1-106

APPLICABLE TIME COMPLIANCE TECHNICAL ORDERS

None

CONSUMABLE MATERIALS

Nomenclature	Specification/Vendor Part Number
CLOTH, LINT-FREE	-
OIL, PRESERVATIVE	MIL-L-6081, GRADE 1010
SOLVENT, PETROLEUM	P-D-680, TYPE II OR TYPE III

EXPENDABLE ITEMS

None

APPLICABLE SUPPORT EQUIPMENT

None

ILLUSTRATED SUPPORT EQUIPMENT

None

1. INTRODUCTION.

(See Table 1.)

a. This work package contains maintenence instructions for the following slings and hooks listed in table 1.

Table 1. SLINGS AND HOOKS

	P/N	NOMENCLATURE
1.	PWA 2388	Hook - Safety, 2200 Pound Capacity
2.	PWA 14175	Sling - 3 Cable (Diffuser Case)
3.	PWA 37115	Sling - 44 to 56 Inches Wide, 1 Ton Capacity
4.	PWA 50301	Sling - Engine Handling
5.	PWA 52644	Sling - Augmentor Nozzle Lifting
6.	PWA 53327	Sling - Adjustable, Module Handling
7.	PWA 56336	Sling - Adjustable, Module Handling, 2000 Pound Capacity (Long and Short Cables)
8.	PWA 56337	Sling - Engine Handling
9.	PWA 57628	Fixture, Lift - Rear Compressor, Forward Split Case
10.	PWA 6580	Sling - Front and Rear Compressor Rotor Assembly (Lift)
11.	PWA 71294	Sling - Lift, Disk Drum Rotor, Front Compressor Assembly
12.	PWA 7454	Sling - Lift and Turn Engine

2. CLEANING.

a. Use soft bristle brush to loosen dirt and remove foreign material from tool.

b. Remove grease from tool using P-D-680 petroleum solvent or equivalent. Wipe solvent from tool with clean, dry, lint-free cloth.

c. Dry tool with compressed air at 30 psig maximum discharge pressure.

3. INSPECTION.

(See Tables 2 and 3.)

a. Inspect support equipment per tables 2 and 3.

b. Inspect support equipment for cracked, bent or broken details or any other signs of failure.

c. Dead load test slings and hooks, listed in table 2, for a minimum of 2 minutes in accordance with T.O. 35D6-1-106 paragraph 7. Then, FPI. No cracks are allowed.

d. Inspect weld areas and heat associated heat-affected zones of tooling, refer to T.O. 33B-1-1, using fluorescent penetrant, Type I, Method C, Sensitivity Level 3, Form b, c, or d, or Method D, Sensitivity Level 4, Form b, c, or d.

Table 2. SLINGS AND HOOKS - LOAD TEST REQUIREMENTS

P/N	NOMENCLATURE	LOAD TEST (LBS.)
PWA 2388	Hook - Safety, 2200 Pound Capacity	4400
PWA 14175	Sling - 3 Cable (Diffuser Case)	400
PWA 37115	Sling - 44 to 56 Inches Wide, 1 Ton Capacity	4000
PWA 50301	Sling - Engine Handling	8000
PWA 52644	Sling - Augmentor Nozzle Lifting	1280
PWA 53327	Sling - Adjustable, Module Handling	4000
PWA 56336	Sling - Adjustable, Module Handling, 2000 Pound Capacity (Long and Short Cables)	4000
PWA 56337	Sling - Engine Handling	8000
PWA 57628	Fixture, Lift - Rear Compressor, Forward Split Case	200
PWA 6580	Sling - Front and Rear Compressor Rotor Assembly (Lift)	2000
PWA 71294	Sling - Lift, Disk Drum Rotor, Front Compressor Assembly	360
PWA 7454	Sling - Lift and Turn Engine	8500

4. REPAIR/REPLACEMENT.
(See table 3.)

a. Replace details as required. See T.O. 2J-F100-94 Support Equipment Illustrated Parts Breakdown.

b. Where tool has coating bare spots, touch up as follows:

(1) For steel details touch up with black oxide, Presto Black PC10 or Gun Blue PB22.

(2) For aluminum details touch up with anodize treatment or Alodine 600.

(3) For painted details: apply one coat zinc chromate primer, AMS 3110, TT-P-1757, and two coats gray enamel, FED-STD-595, No. 16473.

c. Apply MIL-L-6081, Grade 1010 corrosion preventive oil before storing.

Table 3. Serviceable and Replacement Limits

Frequency	Inspection Area	Inspection Method And Condition	Maximum Serviceable Limits	Maximum Reparable Limits	Corrective Action
Annual	Entire tool	Dead load test per table 2	Load test value listed in table 2	Not reparable	Replace tool
Annual	Hooks, collars, shackles	MPI for cracks	Not serviceable	Not reparable	Replace tool
Annual	All welds	FPI for cracks	Not serviceable	Not reparable	Replace tool
Each use	Entire tool	Visual for nicks and burrs	Not serviceable	See corrective action	Remove all pickup and high metal with a fine stone. Refer to T.O. 2-1-111.
Each use	Entire tool	Visual for broken, or missing details	Not serviceable	Not reparable	Replace detail(s).
Each use	Bolt(s), nut(s), screw(s)	Visual for nicks, burrs, and thread damage	Not serviceable	See corrective action	Remove all pickup and high metal with a fine stone. Chase threads or replace. Refer to T.O. 2-1-111.
Each use	Cable(s), lanyard(s)	Visual for broken or frayed cables	Not serviceable	Not reparable	Replace cable(s).
Each use	Pin(s)	Visual for wear, grooves, strain, and distortion	Not serviceable	Not reparable	Replace pin(s).

Table 3. Serviceable and Replacement Limits (continued)

Frequency	Inspection Area	Inspection Method And Condition	Maximum Serviceable Limits	Maximum Reparable Limits	Corrective Action
Each use	Entire tool	Visual for coating	No bare spots	Any amount	For steel details: Black oxide per AMS 2485, Gun Blue or equivalent. For aluminum details: Anodize-treat per AMS 2470, AMS 2472 or apply Alodine or hardcoat per AMS 2468 or equivalent. For painted details: apply one coat zinc chromate primer AMS 3110, TT-P-1757, and two coats gray enamel FED-STD-595, No. 16473.